FAUNA HAWAIIENSIS

OR THE

ZOOLOGY OF THE SANDWICH (HAWAIIAN) ISLES:

Being Results of the Explorations instituted by the Joint Committee appointed by

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EDITED BY

DAVID SHARP, M.B., M.A., F.R.S.

SECRETARY OF THE COMMITTEE.

VOLUME III. PART I.

DIPTERA BY P. H. GRIMSHAW.

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FAUNA HAWAIIENSIS

or the

Zoology of the Sandwich (Hawaiian) Isles/

BEING THE LAND-FAUNA OF THE HAWAIIAN ISLANDS

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FAUNA HAWAIIENSIS

VOL. III. PART I.

DIPTERA

P. H. GRIMSHAW

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It is also intended to give a list of the Vertebrates, with their distribution, in the Islands.

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DIPTERA

By P. H. GRIMSHAW

DIPTERA.

By Percy H. Grimshaw.

Introduction.

In the following pages 172 species of Diptera are recorded as inhabiting the Sandwich Islands. Very little was known of this section of the fauna previous to the visits of Mr Perkins—indeed I have only been able to find 22 species recorded (although I believe I have consulted all the available literature)—together with three or four referred to certain genera but not specifically identified. Of these, 10 appear to be represented in the present collection, 9 are practically cosmopolitan, while 9 were originally described from these islands. In the present contribution I have found it necessary to describe 106 species as new to science, and for the reception of 13 of these I have ventured to characterise 6 new genera.

The collection formed by Mr Perkins being a comparatively small one, and the other published records being so few, it would be unwise to discuss at any length any peculiarity in the distribution of the species that may appear to be indicated by the few specimens obtained. I may, however, point out that out of the total number of 172 species no fewer than 134 have hitherto been obtained from only a single island.

As at present known, the distribution in the various islands is as follows:

	No. of species.	*No. of peculiar species.*	*Percentage of peculiar species.*
Kauai	27	14	52
Oahu	40	24	60
Molokai	29	17	59
Lanai	18	8	44
Maui	22	15	68
Hawaii	88	56	64

In proportion to the number of species obtained, the Drosophilidae are unusually well represented, and include two new and remarkable generic forms. The Tipulidae (sensu stricto) have not yet been found on any of the islands, but their allies the

Limnobiidae are represented by at least nine species, including one belonging to the very interesting genus *Styringomyia*, originally founded upon specimens preserved in copal. It is curious, and perhaps significant, that the Orthorrhapha Brachycera, an important section of the order, are very sparsely represented (including only an unidentified species of *Sargus*, 11 Dolichopodidae, and an imported species of *Scenopinus*). The Tabanidae are dependent upon the presence of mammals, and hence their absence is easily accounted for, but it is somewhat astonishing that not a single specimen belonging to the large families Asilidae, Bombyliidae, or Empidae has yet been obtained.

Fam. MYCETOPHILIDAE.

SCIARA Meigen.

(1) *Sciara molokaiensis*, sp. nov.

♀. Long. corp. 1½ mm.; al. 2½ mm. Antennae blackish, joints of scape lighter, those of flagellum sessile, twice as long as broad. Head black, palpi yellow. Thorax black, shining, humeri yellowish, pleurae yellowish, but dark above the intermediate coxae, halteres yellowish with dark club. Abdomen reddish-brown, hind borders of the segments, especially of the apical ones, darker, venter yellow. Legs pale, all the coxae and femora yellow, the latter with a black spot at the extreme base, tibiae yellowish with the spurs conspicuous and whitish, tarsi brownish, becoming darker towards the tip. Wings greyish hyaline, costal and first and third longitudinal veins darker and stronger than the rest, first longitudinal vein ending at half the length of the wing, before the base of the fork and opposite the tip of the sixth vein; distance between the tips of the first and third veins four times that between the tip of the third vein and the termination of the costal; anterior branch of the fork ending midway between its posterior branch and the tip of the third vein; termination of the fifth vein midway between the posterior branch of the fork and the sixth vein; furcation of fifth and sixth veins near the base of the wing and considerably before the origin of the anterior cross vein.

HAB. Molokai Mts., 6500 ft., September 1893, one female.

Plate I. fig. 1, wing.

PLATYURA Meigen.

(1) *Platyura fuscocostata*, sp. nov.

♀. Long. corp. 6 mm.; al. 6½—7 mm. Antennae short and broad, first, second and basal half of third joints yellow, remaining joints dark brown, third joint elongated, more than twice the length of the succeeding joints, which are sessile and a little broader than long. Face and palpi with white tomentum, vertex and occiput shining black. Thorax dark fuscous, almost black, collar and shoulders whitish, pleurae dark and shining, whitish beneath the shoulders, scutellum and metanotum dark, halteres with pale stem and nearly black knob. Abdomen dark, segments two to five with a yellow posterior border. Coxae dark, those of fore and intermediate legs paler towards the apex, fore femora and all the tibiae testaceous, hind femora and all the tarsi dark brown, Wings longer than the body, hyaline, apices and hind margins tinged with fuscous, costal, subcostal and marginal cells dark fuscous. Costal vein extending beyond the junction with the third longitudinal vein half the distance from that point to the tip of the anterior branch of the fourth longitudinal, auxiliary vein terminating opposite the origin of the third vein, first longitudinal vein ending opposite the end of the sixth longitudinal vein, anterior branch of third vein terminating in the costa at two-thirds of the distance from the tip of the first to the tip of the posterior branch of the third vein, furcation of fifth and sixth veins opposite the origin of the third vein, seventh vein short but distinct.

Hab. Hawaii, Kilauea, August 1896, a single female.—Maui, a specimen without abdomen (? sex) from Haleakala, 5000 ft., October, 1896.

Plate I. figs. 2—3, wing, and base of ♀ antenna.

(2) *Platyura hawaiiensis*, sp. nov.

Long. corp. ♂♀ 5 millim.; al. ♂ 4, ♀ 5—6 millim.

Antennae in ♂ about twice as long, in ♀ about as long as the thorax, brownish-black, with the first two and basal half of the third joints yellow, in ♂ the joints at the base of the flagellum twice as long as broad, towards the apex more slender, and at least three times as long as broad, all covered with a short regular pubescence, in ♀ all the joints a little longer than broad and more uniform. Thorax reddish-yellow, black-haired, with two broad lateral black stripes which are abbreviated in front, leaving the humeri yellow, but confluent behind, metanotum dark, scutellum dark in two of the specimens but lighter in the third, halteres yellow. Abdomen of ♂ slender, clavate, of ♀ broader, first segment wholly yellow or reddish-yellow, second yellow with the basal half blackish, succeeding segments blackish with broad yellowish posterior bands. Legs pale, apices of tibiae and the whole of the tarsi dark. Wings hyaline, with the apices and hind margins tinged with fuscous, sixth vein slightly clouded; auxiliary vein terminating a little before the origin of the third vein, the venation otherwise very like that of the preceding species.

Hab. Hawaii, Olaa, July 1895, one male; Kilauea, one female, September 1895; Kona, one female, 4000 ft., September 1892.

Plate I. fig. 4, base of ♂ antenna.

(3) *Platyura insularis*, sp. nov.

♀. Long. corp. 4½ mm.; al. 4 mm.

Antennae about half the length of the thorax, first, second, and basal half of third joints yellow, remaining joints dark brown, those of the flagellum about as broad as long, pubescent, palpi yellow. Thorax dirty-yellow, clothed with black hairs which are short on the dorsum but longer behind and at the sides, scutellum brownish, halteres yellow. Abdomen black, shining, first segment dark, second to fifth segments each with a transverse posterior band of yellow. Legs pale, tarsi darker. Wings hyaline, apices tinged with fuscous and the sixth vein clouded, in one specimen also a slight clouding at the origin of the fourth vein; auxiliary vein abbreviated, not reaching the costa, anterior branch of the third vein terminating about midway between the tip of the first vein and the tip of the posterior branch of the third vein.

HAB. Molokai Mts., 3000 ft., September 1893, one female.—Hawaii, Kona, 4000 ft., July 1892, one female.

Two males, in bad condition, from Koholuamano, Kauai and Wainae Mts., Oahu, 3000 ft., respectively, may also belong to this species.

Plate I. fig. 5, base of ♀ antenna.

Fam. CHIRONOMIDAE.

CHIRONOMUS Meigen.

(1) *Chironomus hawaiiensis*, sp. nov.

Long. corp. ♂ 5, ♀ 5—6 mm.; al. ♂ 3, ♀ 3—3½ mm.

♂. Head and basal joints of antennae yellow, palpi yellowish-brown, plumes of antennae light yellowish-brown, eyes black. Thorax with the ground-colour whitish, almost silvery, in some specimens with a slight greenish tinge, two anterior approximated dorso-central and two posterior lateral abbreviated stripes reddish-brown, the three lines of ground-colour thus left furnished with rather long very pale hairs; pleurae and scutellum greenish-grey, the latter with long pale yellow hairs, metanotum reddish-brown, halteres pale. Abdomen slender, yellowish-grey, with light yellow hairs, each segment with a triangular basal dark brown spot, the apex of which points backward while the base extends completely across the segment, apical segments almost entirely dark. Legs light yellow, all the femora with a brown ring near the apex, fore legs except the femora, bare, with the tibiae a little more than half the length of the metatarsi, basal third and tip of tibiae brown, tips of all the tarsal joints likewise brown, intermediate and hind legs long-haired, tips and bases of the tibiae and tips of the tarsal joints brown. Wings whitish hyaline, anal angle prominent, transverse vein dark, rest of venation pale.

♀. Similar to the male, terminal joints of the antennae dark and slender, legs almost bare.

Hab. Oahu, Waialua, Koolau range, three males and three females from the beach and coast, February 1893.

Plate I. figs. 6 and 7, wing and ♀ antenna.

ORTHOCLADIUS V. d. Wulp.

(1) *Orthocladius*, sp.

Two females belonging to this genus, not in sufficiently good condition for description, were obtained at Haleakala, Maui, 5000 ft., in March 1894.

TANYTARSUS V. d. Wulp.

(1) *Tanytarsus lacteiclavus*, sp. nov.

♂ ♀. Long. corp. 2 mm.; al. $1\frac{3}{4}$ mm.

Antennae light brown. Thorax uniform blackish-brown, halteres pale, almost milky-white. Abdomen dark-brown, genitalia of ♂ conspicuous, light yellowish. Legs light brown, hairy, fore metatarsi not quite half as long again as the fore tibiae, all the tibiae darker at the tip, all the metatarsi ringed with white at the base and apex, remaining joints of the tarsi unicolorous. Wings hyaline and uniformly hairy.

Hab. Kauai, Koholuamano, six males and two females (all gummed on one card), April 1895.

CERATOPOGON Meigen.

(1) *Ceratopogon*, sp.

Three imperfect specimens of a species belonging to this genus, two of which are males, were beaten from trees, Wainae Mts., Oahu, 3000 ft., in April 1892. Drawings of the wing, the apical joints of the male antennae, and the end of the fore foot in the same sex, are given in Plate I. figs. 8—10. In the last joint of the foot there represented I would draw attention to the remarkable excavation on the upper side of the base, a feature which, so far as I am aware, has not hitherto been noticed in members of this genus.

Fam. PSYCHODIDAE.

Psychoda Latreille.

(1) *Psychoda alternata* Say.

Psychoda alternata Say, Long's Exped. Appendix, p. 358 (1824).

Hab. Hawaii, six specimens from Kona, 2000 ft., September 1892, are so like British examples of this species, which, according to the Rev. A. E. Eaton, is the same as *P. sexpunctata* Curtis (Ent. Mo. Mag. 1898, p. 123) that I hesitate to describe them as distinct.

(2) *Psychoda inornata*, sp. nov.

Long. corp. 1 mm.; al. 2 mm.

Wholly yellowish, covered with light yellow hairs. Antennae nearly as long as the body, joints moniliform, with long verticils of pale yellow hair. Wings hyaline, without spots, veins and margins with long pale hairs which are longest at the anal portion of the margin.

Hab. Hawaii, three specimens (sex undetermined) from Kona, 4000 ft., August 1892.

Plate I. fig. 11, wing.

Fam. CULICIDAE.

Culex Linn.

(1) *Culex taeniatus* Wied.

Hab. Oahu. Half-a-dozen female specimens from Kaala Mts., 1500 ft., March 1892, agree exactly with examples so named in the British Museum from Jamaica and elsewhere. The species appears to be almost cosmopolitan, and its synonyms are too numerous to give in this place.

Fam. LIMNOBIIDAE.

Limnobia Meigen.

(1) *Limnobia perkinsi*, sp. nov.

♂ ♀. Long. corp. 4—5 mm.; al. $5\frac{1}{2}$—7 mm. Antennae dark brown. Thorax yellow, with the following dark brown markings: a broad central stripe, commencing at the anterior margin and widening out behind the humeri so as to cover the whole of the dorsum except two very short central stripes and two small lateral spots immediately in front of the suture; behind the suture four slender stripes, two central and two lateral, the former continued over the scutellum; metanotum dark; halteres with yellow base, dark stem and yellow club. Abdomen brown, banded with yellow on the fore borders of the segments, venter yellowish. Legs yellow, femora conspicuously banded with dark brown at the tip, tibiae very slightly darker at the tip. Wings hyaline, with the marginal cross-vein, origin of 2nd vein, origin of 3rd vein, anterior and posterior cross-veins, base of fork of anterior branch of 4th vein and transverse vein closing discal cell, clouded with fuscous, a slight clouding also at junction of the 1st, 4th and 5th longitudinal veins. Auxiliary vein terminating opposite the origin of the 3rd vein, anterior branch of 4th vein bifurcating considerably before the end of the discal cell, posterior transverse vein before the middle of the discal cell.

HAB. Hawaii, Kona, two males, 2000—3000 ft., Sept.—Oct. 1892.—Oahu, Honolulu, November 1896, one female.

Plate I. fig. 12, wing.

DICRANOMYIA Stephens.

(1) *Dicranomyia apicalis*, sp. nov.

Long. corp. ♂ 7, ♀ 6—7 mm.; al. ♂ 8, ♀ 7—9 mm. Ochraceous; head yellow, frons in ♀ silvery, antennae pale with 1st joint dark fuscous. Thorax with pale yellow central stripe and sides of mesonotum light brown; pronotum light yellow with brown lateral spots; metanotum, scutellum and halteres pale. Abdomen brownish, ♂ genitalia dark brown, ♀ with ovipositor reddish-yellow. Legs pale, femora with a black ring at the tip, tibiae slightly infuscated at the tip. Wings yellowish hyaline, not spotted, stigma light brown, auxiliary vein terminating opposite to or a little before, and subcostal cross-vein considerably before, the origin of the 2nd vein.

HAB. Hawaii, Olaa, one male and two females, July 1895, and December 1896.—Lanai, 2000 ft., one female, December 1893.

Plate I. fig. 13, male genitalia.

(2) *Dicranomyia hawaiiensis*, sp. nov.

♂ ♀. Long. corp. 6—7 mm.; al. 7 mm. Head and front cinereous, antennae dark brown with the two basal joints yellow. Thorax yellowish-cinereous, mesonotum with a double central dark brown stripe reaching from the anterior margin to the transverse suture, and two lateral patches of the same colour commencing behind the humeri and reaching to the scutellum, which is cinereous; metanotum cinereous above with the sides fuscous; halteres pale, base of club darker. Abdomen dark brown, segments narrowly edged with yellow posteriorly. Legs very slender, with the femora dark, slightly thicker and distinctly tipped or ringed with pale yellow at the apex, tibiae and tarsi light brown. Wings hyaline, stigma brown, oval and well-marked, base of 2nd longitudinal vein and all the transverse veins slightly infuscated, termination of auxiliary vein opposite, and subcostal transverse vein opposite or nearly opposite, the origin of the 2nd longitudinal vein.

HAB. Hawaii, Hilo, 2000 ft., January 1896, two males (one in bad condition).—Kauai, one male, 4000 ft., Oct. 1895; Koholuamano, four females, April 1895.—Molokai Mts., one male and four females, 3000—4500 ft., Sept. 1893 and June 1896.—Maui, one male, Haleakala, 5000 ft., May 1896.

(3) *Dicranomyia brunnea*, sp. nov.

♂ ♀. Long. corp. 5—7 mm.; al. 7—9 mm. Head, antennae and palpi fuscous. Thorax and scutellum entirely brownish-ochraceous to dark brown; halteres fuscous. Abdomen blackish-brown, unicolorous. Legs brown, tibiae and tarsi distinctly hairy, especially the latter, claws of ♂ large, about half as long as the last tarsal joint. Wings hyaline, stigma very pale, termination of auxiliary vein and position of subcostal transverse vein as in *D. hawaiiensis*.

HAB. Hawaii, one male and one female, Hilo, 2000 ft., Jan. 1896; Kona, two males, 2000—4000 ft., June—Aug. 1892.—Kauai, three females, Koholuamano, April 1895; two males and one female, 4000 ft., Oct. 1895.—Maui, two males, Haleakala, 5000 ft., May 1896.—Molokai, Kohanui, one male, Sept. 1893; one female, woods above Pelekunu, Aug. 1893.

A male specimen from Hawaii, Olaa (July 1895) has the auxiliary vein somewhat longer, so that its tip and the subcostal cross-vein are just beyond the origin of the 2nd longitudinal vein; in other respects it agrees with the other specimens enumerated above.

(4) *Dicranomyia kauaiensis*, sp. nov.

♂ ♀. Long. corp. 3—4 mm.; al. 4—5 mm. A small, slender species. Antennae and palpi dark brown. Thorax ochraceous, unicolorous, halteres pale with dark club. Abdomen dark brown, unicolorous. Legs pale yellowish brown. Wings hyaline, stigma very pale, veins slender, details of venation as in preceding species.

HAB. Kauai, 4000 ft., October 1895, four males and two females.

(5) *Dicranomyia variabilis*, sp. nov,

♂ ♀. Long. corp. 6 mm.; al. 7½—8 mm. Head, palpi and antennae entirely dark brown. Thorax obscurely ochraceous, with a broad central dark brown stripe, scutellum and metanotum brownish ochraceous, halteres with light yellow stem and blackish club. Abdomen dark brown, hind margins of segments slightly paler, ♂ genitalia dark brown, ♀ with reddish-yellow ovipositor. Legs light brown, knees paler. Wings hyaline, stigma distinct, origins of 2nd and 3rd longitudinal veins and all the transverse veins slightly clouded, in the ♀ specimen the discal cell is open; termination of auxiliary vein in the ♂ specimen slightly before the origin of the 2nd vein, but in the ♀ a little beyond it, subcostal cross-vein in ♂ before, in ♀ opposite the origin of the 2nd vein. Hence the species appears to be remarkably variable in its venation, especially as in the ♂ specimen the auxiliary vein of the right wing terminates much nearer the origin of the 2nd vein than that of the left wing.

Hab. Haleakala, Maui, 5000 ft., May 1896, one male and one female.

(6) *Dicranomyia latifrons*, sp. nov.

♂. Long. corp. 5 mm.; al. 6½ mm. Occiput cinereous, eyes widely separated, front cinereous with white tomentum, antennae yellow, darker towards the tip. Thorax light cinereous with broad central stripe and two short lateral stripes dark brown, pleurae glistening yellowish-white, a spot beneath the root of the wings almost silvery, halteres pale with dark knob. Abdomen dark brown, segments edged posteriorly with light yellow, genitalia light yellow. Legs yellowish-brown, last two or three tarsal joints darker. Wings long and narrow, hyaline, stigma very pale, auxiliary vein terminating opposite the origin of the 2nd vein, subcostal cross-vein a little before this, tip of 1st longitudinal vein connected with the costa and the 2nd longitudinal vein by distinct cross-veins.

Hab. Oahu, Waialua, Koolau range, Beach, one male, February 1893.

Trimicra Osten-Sacken.

(1) *Trimicra lateralis*, sp. nov.

♂. Long. corp. 6 mm.; al. 8 mm. Head ochraceous; vertex and occiput with dark central stripe and conspicuous long hairs, antennae blackish, with first two joints yellow, palpi dark. Thorax brownish-yellow above, long-haired, with three rather indistinct dark brown narrow stripes, the central one somewhat shining, pleurae pale ochraceous, scutellum and metanotum dark brown, covered with cinereous tomentum, halteres pale. Abdomen dark brown with the lateral margins (but *not* the posterior margins) pale yellowish, genitalia conspicuous, reddish-yellow. Legs testaceous, densely clothed with long, fine erect hairs, femora with a broad brownish ring before the tip, apices of metatarsi and succeeding joints blackish. Wings slightly brownish tinged, 2nd longitudinal vein slightly infuscated.

♀ (? same species). Long. corp. 4 mm.; al. 6 mm. Similar to ♂, but smaller, abdomen without the pale lateral margins, legs less conspicuously hairy, hairs decumbent, wings clearer.

This species appears to be closely allied to *T. anomala* O.-Sack., but may be distinguished therefrom by the absence of the pale hind margins of the abdominal segments.

HAB. Hawaii, one male, Olaa, December 1896; one female, Kaawaloa, 1500 ft., June 1892.

STYRINGOMYIA Loew.

The specimen described below is perhaps the most interesting Dipteron in the whole collection. The genus was originally founded upon specimens preserved in copal, and a second species has been found in amber. In 1872 Baron C. R. Osten-Sacken discovered that the genus was represented in South Africa by an existing species, which however he did not describe.

(1) *Styringomyia didyma*, sp. nov.

♀. Long. corp. $5\frac{1}{2}$ mm.; al. 4 mm. Antennae yellow, 1st joint twice the length of the second, light yellow above, infuscated at the sides, 2nd joint fuscous, palpi yellowish, darker at the tip. Thorax reddish-brown, with a large sub-triangular light yellow spot on each side immediately behind the suture and merging into the light yellow colour of the pleurae; halteres light yellow. Abdomen long and slender, light yellow, each segment with a pair of hemispherical dark brown spots near the posterior margin, on the 1st segment almost covering the whole of the dorsum, on the succeeding four segments smaller, on the 6th again larger, on the 7th more elongated, and almost coalescing with a central dark stripe which reaches the anterior margin. Hind legs (the only ones present in the specimen here described) stout, yellow, femora long-haired with two brown spots on the upper surface at a distance respectively of one-third and two-thirds from the base, tibiae slightly darker at the tip, thickly clothed with short hairs and furnished on their outer sides with a row of regularly disposed long bristles, tarsi hairy with the last joint dark brown. Wings yellowish-hyaline, veins pale, anterior transverse vein conspicuously infuscated, fork of anterior branch of the 4th vein and the posterior transverse vein slightly so, auxiliary vein difficult to distinguish from the first longitudinal vein owing to the flexure of the wing, terminating opposite the origin of the 2nd longitudinal vein, terminal section of the 2nd longitudinal vein straight, abruptly bending towards the costa, which it joins opposite the posterior transverse vein, 7th vein distinctly curved at the tip, terminating opposite the origin of the 2nd longitudinal vein.

HAB. Oahu, one female, Honolulu, November 1896.

Plate I. figs. 14—16, head, abdomen, wing.

Fam. STRATIOMYIDAE.

Sargus Fabricius.

(1) *Sargus*, n. sp.

Five specimens belonging to this genus are recorded but not described by L. O. Howard from Hawaii (Proc. Ent. Soc. Washington, Vol. iv. No. 4, p. 490, July 1901).

Fam. SCENOPINIDAE.

Scenopinus Latreille.

(1) *Scenopinus niger* Mg.

Two females labelled "Hotel, Honolulu, 12. iv. 1892" agree tolerably well with European specimens of this species.

Note :—With the exception of the unidentified species of *Sargus* mentioned above and the Dolichopodidae this is the only fly belonging to the section Brachycera of the Sub-Order Orthorrhapha obtained by Mr Perkins in these islands, and even it is evidently introduced. It seems curious and perhaps significant that the large Families Asilidae, Bombyliidae and Empidae should be totally unrepresented. The absence of Tabanidae is not surprising, seeing that there are no indigenous Mammals.

Fam. DOLICHOPODIDAE.

Gnamptopsilopus Aldrich.

(1) *Gnamptopsilopus patellifer* Thomson.

Psilopus patellifer Thomson, Eugenies Resa, Diptera, p. 507. [Guam, Marianne Islands.]

Hab. Oahu, Waianae Mts., two males and twelve females, April 1892, on plant called Popolo ; six males and nine females, Waialua, Koolau range, April 1892, on Popolo.—Hawaii, four females, Kona, 1500 ft., September 1892.

The Hawaiian examples correspond very well with Thomson's description. There is, however, in the latter no mention made of a peculiar structure situated in the hind tibiae of the male, at about one-fourth from the base. At this point the tibia appears, when seen from the side, to be swollen and distinctly grooved externally, and when seen from behind to be slightly bowed outwards and furnished inside the bend with a row of very short, erect bristles. The colour is much darker in the neighbourhood of this distortion, and hence the tibiae appear brown-ringed, even to the naked eye.

As Thomson only described the male, a short account of the other sex is here appended: ♀. Like the male, but lighter green, the abdomen generally with a coppery tinge. Arista of the antenna without the enlargement at the tip, halteres light with orange-coloured knob, legs much paler, femora entirely bright yellow, front tibiae with the three outer bristles longer, and also provided with two long bristles on the inner surface, intermediate tibiae with three or four bristles on the inner and outer sides, hind tibiae simple, with three long bristles on the outer side only, tarsi dark, wings with the posterior transverse vein much less bent, in some specimens almost straight.

This species appears to be very closely allied to *G.* (*Psilopus*) *globifer* Wied., but differs from that species by the fact that the fore tibiae are slightly longer than the metatarsi, the latter not being broad and compressed, while the wings are quite clear (compare Schiner's description in Reise d. Novara, Dipt. pp. 215—216).

Plate I. figs. 17—19, ♂ genitalia, wing, leg of ♂.

(2) *Gnamptopsilopus pallidicornis*, sp. nov.

♂. Long. corp. 5 mm.; al. 5 mm. Front and face metallic green, dusted with white tomentum, the former deeply excavated, clypeus snow-white, proboscis and palpi light yellow. Antennae with all the joints light yellow, arista apical, dark brown, about as long as the abdomen. Thorax bright metallic green, dusted in front with greyish-white tomentum, scutellum bluish-green, with two bristles, halteres light yellow. Abdomen very slender and laterally compressed, with first segment metallic green, second segment metallic green with the base and sides yellow, third yellow with a triangular green spot at posterior margin, fourth yellow with green posterior margin, fifth and sixth entirely metallic green with a coppery tinge, hypopygium with two slender light yellow filaments. Legs, including the coxae, entirely light yellow, tips of the tarsi a little darker, front pair with three whitish bristles on the coxae, otherwise without bristles, intermediate pair with about three weak ones on the under side of the femora and two on the outer side of the tibiae, viz. one about the middle and a minute one near the base, hind pair with two rows of minute bristles regularly disposed. Wings hyaline, slightly clouded near the tips of the 2nd and 3rd longitudinal veins, both of which are bent back towards the 4th, branch of the latter making a right angle at its origin, posterior cross-vein oblique, two-thirds of its length from the margin.

HAB. Oahu, one male, Honolulu, November 1896.

This species appears to be closely allied to *G. flavicornis* Aldrich (Tr. Ent. Soc. 1896, p. 342), described from the island of St Vincent. It is however much larger, and the arista of the antennae is apical.

Plate I. figs. 20 and 21, ♂ genitalia, wing.

Liancalus Loew.

(1) *Liancalus metallicus*, sp. nov.

♂. Long. corp. 6 mm.; al. 5 mm. Dark metallic green. Vertex metallic green, front and face covered with white tomentum, proboscis and palpi black. Antennae entirely black, cilia of posterior orbit black. Thorax and scutellum dark metallic green, without stripes, the latter with two long bristles and two minute fine hairs, one on each side near the base, halteres pale yellow. Abdomen dark metallic green, unicolorous, first segment fringed on its posterior margin with long black hairs, succeeding segments also fringed, but with shorter hairs, hypopygium blackish, with the exterior appendages yellowish, rather short, sub-claviform, and tipped with long black hairs. Legs entirely black and shining, all the femora with a slight greenish tinge and a few small bristles near the tip beneath, fore tibiae with two, and intermediate with three bristles on their outer surfaces, hind tibiae with four or five bristles on the outer surface and three small ones on the inner surface. Wings tinged with brownish, which is deeper in their apical half, without spots, veins blackish, 1st longitudinal vein terminating at about one-fourth of the length of the costa, 3rd and 4th veins slightly converging in their apical third, posterior cross-vein slightly curved, about half its length from the posterior margin of the wing.

♀. Long. corp. 6—7 mm.; al. 6½—8 mm. Very similar to, but larger than the male, with the wings much darker tinged.

Hab. Hawaii, one male, Olaa, December 1896.—Molokai Mts., 4—500 ft., one female, August 1893.—Kauai, one female, Waimea Mts., 4000 ft., 1894.

? Gen. nov. et sp. A male Dolichopodid from Waimea Mts., Kauai, obtained in 1894 at a height of 4000 ft., may form the type of a new genus. As the specimen is in bad condition, however, I prefer to leave it undescribed. It appears to be related to *Hydrophorus* and *Medeterus*, but the thorax has a concave depression behind, the scutellum has six bristles, the abdomen six segments, the last very short, the hypopygium not imbedded and the middle tibiae with long spines.

Campsicnemus Walker.

(1) *Campsicnemus fimbriatus*, sp. nov.

♂ ♀. Long. corp. 2½—3 mm.; al. 3—4 mm. Front greenish, slightly metallic. Antennae entirely reddish-yellow, third joint small, rounded at the tip and distinctly hairy, arista pubescent. Thorax ochraceous, shining, with a greenish and slightly metallic tinge on the dorsum, scutellum yellow, in the ♀ tinged with green at the base, halteres yellow. Abdomen in ♂ blackish, shading off into coppery and then greenish on the posterior half of each segment; in the ♀ more uniformly black with a greenish tinge. Legs pale yellow, middle coxae with a large blackish spot on the basal half of their outer surfaces, fore femora in the ♂ and sometimes in ♀ brownish on their basal half, all the tarsi dark towards the tip. Fore femora without bristles, middle femora distinctly bent forward at the tip in the ♂, in both sexes with two or three large bristles at the tip, hind femora with a single bristle near the tip. Fore tibiae in both sexes with two bristles on the outer side, middle tibiae in the ♂ slightly curved, thickly and regularly covered with short hairs, on the outer surface with four strong bristles, on the inner surface with a row of very long, fine ones, in the ♀ much less hairy, with three bristles on the inner surface and four or five on the outer, hind tibiae in both sexes with about ten bristles. Wings dusky-hyaline, 3rd and 4th veins exactly parallel, posterior transverse vein more than twice its length from the posterior margin of the wing.

Hab. Hawaii, two males and three females, Kilauea, August 1895.

Plate I. fig. 22, intermediate femur and tibia of ♂.

(2) *Campsicnemus distortipes*, sp. nov.

♂. Long. corp. 2·5 mm.; al. 3 mm. Similar in all respects save the structure of the legs to *C. fimbriatus*. Fore legs entirely without long bristles, femora and tibiae straight, metatarsi bowed outwards and furnished on the inner side of the tip with a cushion of very short and thick black bristles. Intermediate femora with a single long and strong bristle on the hind surface near the tip, a row of somewhat finer regularly arranged and erect bristles on the basal two-thirds of the under surface and a number of fine long erect hairs on the apical half of the upper surface; tibiae curiously twisted and much enlarged at the tip, on the inner surface with one or two rows of shortish erect bristles, five or six long and strong bristles near the tip, on the outer surface of the expanded portion with a number of short stubble-shaped bristles; metatarsi short, bent and twisted, projecting beyond the insertion of the 2nd tarsal joint in the form of a blunt rounded process and also furnished with a short thick black spur behind, remaining tarsal joints normal and slender; hind femora with a single bristle near the tip above, tibiae with nine bristles on the outer surface, arranged in two rows, tarsi slender.

Hab. Hawaii, one male, Kilauea, August 1895.

Plate I. figs. 23 and 24, intermediate leg of ♂, outer and hind surfaces.

(3) *Campsicnemus calcaratus*, sp. nov.

♂. Long. corp. 2 mm.; al. 3 mm. Front dark brown. Antennae brownish, lighter towards the base. Thorax and scutellum obscure brownish-yellow, shoulders lighter, halteres light yellow. Abdomen unicolorous, dark brown. Legs pale yellow, tips of metatarsi and all the succeeding joints darker, fore pair unarmed save for two or three small fine bristles near the tip of the femora, intermediate femora with a row of regularly disposed bristles beneath, tibiae thickly covered with hairs and bristles on both sides, on the inner side the bristles are very short and erect, on the outer side much longer, semi-erect and mixed with a number of more decumbent fine hairs, three or four long and strong bristles near the tip, metatarsus spurred, a little shorter and thicker than the succeeding joint, hind femora with some short hairs beneath and a single subapical bristle on the outer side, tibiae with about eight bristles in two rows on the outer side, and three (including the apical one) on the inner side, metatarsus shorter than succeeding joint.

HAB. Molokai Mts., 4—500 ft., 17th September 1893, one male.

Plate I. fig. 25, intermediate leg of ♂.

(4) *Campsicnemus*, sp.

A male specimen of a very peculiar species, unfortunately in too bad a condition for description, was obtained on the coast, Waianae, Oahu, in January 1897.

CHRYSOTUS Meigen.

(1) *Chrysotus spiniger*, sp. nov.

♂. Long. corp. $2\frac{1}{2}$ mm.; al. $2\frac{3}{4}$ mm. Front fuscous, with a slight greenish tinge, face narrow, silvery, eyes nowhere contiguous, palpi and proboscis black; antennae black, third joint a little excavated at the insertion of the arista, which hence appears to be subapical, cilia of orbit black. Thorax obscure bronzy, in the centre more shining and greenish, shoulders lighter, cinereous, pleurae greyish-green, scutellum bronzy-green, cilia of tegulae black, halteres light yellow. Abdomen bronzy-green, hypopygium concealed, only the dark brown tips of some of the appendages visible. Coxae dark, with a greyish tomentum, fore pair with some bristles near the tip, intermediate and hind pairs with a single bristle about the middle; femora dark brown with an aeneous tinge, tips and bases somewhat yellowish, fore and hind pairs with a single subapical bristle, intermediate with a strong subapical bristle in front, one or two smaller subapical ones beneath, and seven strong spine-like ones beneath, about the middle, the 6th (counting from the apex) the largest, the 7th a little smaller, and the first five about half the size; tibiae brownish-yellow, hind pair much thicker and darker towards the apex, almost clavate, fore pair with a single weak bristle on the outer side about one-fourth from the base, intermediate with a single bristle on the hind surface near the base, one near the middle on the outer surface, and four close together on the middle of the fore surface, hind tibiae with a single bristle on the hind surface at one-third from the base, two on the outer surface at one-third and two-thirds respectively from the base, and three or four at the apex; tarsi without bristles. Wings hyaline, posterior transverse vein outwardly slightly convex, distant only about its own length from the posterior margin of the wing.

♀. Like the ♂ but face broader, not silvery, legs darker, blackish-brown with only the knees and bases of two front pairs of metatarsi a little lighter, femora with an aeneous tinge, hind tibiae not stouter than the others, bristles on all parts of the legs as in the ♂, except that in the intermediate pair the strong spines beneath the middle of the femora and the four bristles on the middle of the fore surface of the tibiae are absent.

Hab. Maui, Haleakala, five males and five females, at over 5000 ft., October 1896.

Plate II. figs. 1, 2 and *2a*, femur of ♂, wing, antenna.

(2) *Chrysotus hawaiiensis*, sp. nov.

♂. Long. corp. 2½ mm.; al. 2½ mm. Bright green. Front fuscous with a greenish tinge, face narrow, silvery, proboscis and palpi black, the latter slightly dusted with whitish; antennae black, third joint slightly excavated before the tip, which is blunt and hairy, arista sub-dorsal, cilia of orbit black. Thorax and scutellum shining metallic green, the latter with two longish bristles, pleurae blackish with cinereous tomentum, greenish above the middle coxae, halteres pale yellow, cilia of tegulae blackish. Abdomen dark green with a coppery tinge, first segment brighter and nearer the colour of the thorax, with long black hairs at the sides, rest of the abdomen covered with short, black hairs, hypopygium black and polished, showing a pair of sub-clavate appendages which are fringed with short brownish and tipped with longer black hairs. Fore coxae yellowish, brown at the base, two hind pairs blackish-brown, all with whitish tomentum, rest of legs light yellow, except the tips of the tarsi, which are dark brown towards the tip. Fore femora with a small, subapical bristle, intermediate pair with a subapical bristle on the fore surface, and a row of nine spine-like bristles on the under surface, extending along the apical two-thirds of the joint, the two nearest the base much longer and stronger, hind femora with two subapical bristles, one on the outer surface and the other (smaller) on the lower surface; fore tibiae with a bristle on the outer surface at one-third from the base and some fine, short hairs on the inner surface, intermediate tibiae with two bristles on the outer surface and three apical ones, hind pair with four on the outer surface, the two nearest the base being closer together, and a single apical one. Wings slightly brownish tinged, strongly iridescent, posterior cross-vein slightly convex outwardly, not quite its own length from the posterior border of the wing.

Hab. Hawaii, one male, Olaa, July 1895.

(3) *Chrysotus saxatilis*, sp. nov.

♂. Long. corp. 2½ mm.; al. 3 mm. Shining metallic green. Front and face shining metallic green, without tomentum, the latter rather broad; antennae black, third joint excavated and the arista hence sub-dorsal; palpi and proboscis black. Thorax and scutellum shining metallic green, pleurae and metanotum greenish, with greyish-white tomentum, halteres bright orange-yellow, cilia of tegulae black. Abdomen concolorous with thorax, black-haired, hypopygium almost concealed, black, showing a rounded hairy protuberance and a pair of small, short-haired, lancet-shaped appendages. Legs blackish-brown, fore coxae and all the femora and tibiae with a metallic green tinge; coxae apparently unarmed, fore femora with a small subapical bristle on the outer side and armed beneath with about a dozen short spines, arranged in two rows, intermediate femora also with subapical bristle and armed beneath with a row of tiny spines, hind femora with two bristles on the outer surface, and a row of minute spines beneath, fore tibiae without conspicuous bristles, middle and hind tibiae each with about four bristles on the outer surface. Wings greyish-hyaline, posterior cross-vein straight or very slightly convex outwardly.

HAB. Oahu, four males, on wet rocks, Kaala Mts., over 2000 ft., March 1893.

Fam. PIPUNCULIDAE.

PIPUNCULUS Latreille.

(1) *Pipunculus molokaiensis*, sp. nov.

♂. Long. corp. 5 mm.; al. 7 mm. Front and face black, with white tomentum antennae with first two joints black, third acuminate, yellow with glistening white pubescence. Thorax and scutellum shining black, the former in front with a slight trace of tomentum, the latter furnished on its margin with about a dozen short bristles, pleurae black, meso- and metapleurae and metanotum with whitish tomentum, halteres yellow. Abdomen entirely shining black, the first segment with longish black hairs at the sides of its anterior half, and on its posterior half banded with white tomentum, hypopygium shining black. Coxae shining black, femora black with yellow bases and apices, tibiae yellowish, with obscure brownish-black rings in the middle, tarsi reddish-yellow with the apical joint black, claws and empodia light yellow, the former with black tips; fore femora beneath with two rows of fine short spines each near the tip, and about four fine hairs near the base, intermediate and hind femora with numerous spines beneath in their apical half, arranged in two rows. Wings slightly brownish tinged, clearer in their basal third, stigma dark brown, as long as the 4th costal segment, small cross-vein before the middle of the discal cell and opposite the termination of the auxiliary vein, second longitudinal vein long, terminating beyond the level of the posterior cross-vein, last two sections of the 4th longitudinal vein about equal in length.

♀. Long. corp. 4 mm.; al. 6 mm. Similar to the male, but a little duller. Ovipositor reddish-yellow, reaching to the 1st abdominal segment. Wings clear.

Hab. Molokai Mts., 3000 ft., a male and female taken in cop., September 1893; one female, 3000 ft., June 1893.

Plate II. figs. 3 and 4, male, wing.

(2) *Pipunculus nigrotarsatus*, sp. nov.

♂. Long. corp. 4 mm.; al. 6 mm. Front and face black, the latter with slight greyish tomentum. Antennae entirely black, third joint acuminate. Thorax and scutellum shining black, pleurae black, metanotum with greyish-white tomentum, halteres yellowish. Abdomen shining black, 1st segment with black hairs on lateral portion of anterior half and banded with greyish tomentum on posterior half, hypopygium shining black. Coxae shining black, femora black with yellowish bases and apices, tibiae yellow, slightly darker in the middle, tarsi wholly black. Wings very slightly brownish tinged, clear near the base, stigma light brown, as long as the 4th costal segment, small transverse vein a little beyond termination of auxiliary vein, second longitudinal vein terminating opposite the posterior cross-vein.

Hab. Hawaii, one male, Kona, 4000 ft., July 1892.

This species appears to be closely allied to *P. molokaiensis*, from which, however, it may at once be distinguished by the entirely black antennae and tarsi.

Plate II. fig. 5, wing.

(3) *Pipunculus rotundipennis*, sp. nov.

♀. Long. corp. 3 mm.; al. 3½ mm. Front and face black. Antennae entirely black, third joint acuminate, arista more gradually thickened at the base than in the preceding species. Thorax, scutellum, pleurae, metanotum, halteres and abdomen all shining black, ovipositor reddish-yellow, extremely short and only reaching the middle of the 3rd abdominal segment. Legs, with the exception of the knees, entirely black, apex of tibiae and base of tarsi a little lighter and covered with fine yellowish pubescence, all the femora with minute spines beneath. Wings short and rounded at the apex, greyish-hyaline, stigma colourless and extremely short, 1st longitudinal vein somewhat thickened at the tip, small transverse vein opposite termination of first longitudinal vein, and a little before the middle of the discal cell, 2nd longitudinal vein terminating opposite the posterior transverse vein, last two sections of the 4th longitudinal vein of equal length.

Hab. Hawaii, one female, Kilauea, December 1896.

Plate II. fig. 6, wing.

(4) *Pipunculus*, sp.

A male and female from Lanai appear quite distinct from any of the other species, but as they are both headless the description is better postponed until perfect examples are obtained.

Fam. SYRPHIDAE.

VOLUCELLA Geoffroy.

(1) *Volucella obesa* Fabricius.

Syrphus obesus Fab., Syst. Ent. 763 (1775).

HAB. Kauai, one male, Waimea Mts., May 1894; four females, Lihue, July 1896.

ERISTALIS Latreille.

(1) *Eristalis tenax* Linnaeus.

Musca tenax Linn., Faun. Suec., ed. 2, p. 444, n. 1799 (1761).

HAB. Hawaii, two males and three females, Kona, 4000 ft., July and August 1892. This species is also recorded from Hawaii by L. O. Howard (Proc. Ent. Soc. Washington, vol. IV. no. 4, p. 490, July 1901).

SYRITTA St Fargeau and Serville.

(1) *Syritta oceanica* Macquart.

Syritta oceanica Macquart, Dip tères Exot. Suppl. V. p. 92, n. 6 (1855).

HAB. Hawaii, four specimens are recorded by L. O. Howard (Proc. Ent. Soc. Washington, vol. IV. no 4, July 1901).

XANTHOGRAMMA Schiner.

(1) *Xanthogramma grandicornis* Macquart.

Syrphus grandicornis Macquart, Diptères Exot. tom. II. pt. 2, p. 96, no. 16, tab. XVI. fig. 7 (1842).

HAB. Hawaii, two males, Kona, 4000—6000 ft., August and September 1892.—Oahu, two males, Kaala Mts., 1000—2000 ft., March 1892; two males and one female, Waianae Mts., Oahu, April 1892. Also recorded from Hawaii by L. O. Howard (Proc. Ent. Soc. Washington, vol. IV. no. 4, p. 490, July 1901).

I have compared the specimens obtained by Mr Perkins with one of each sex in the British Museum collection from E. Wallaby Island and Sydney (or Moreton Bay ?) respectively, and found them to agree in every respect.

Plate II. figs. 7—10, head, antenna, male genitalia.

Fam. OESTRIDAE.

Oestrus Linnaeus.

(1) *Oestrus ovis* Linnaeus.

Oestrus ovis Linn., Faun. Suec., ed. 2, p. 430, n. 1734 (1761).

Hab. Kauai, a single male from Lihue, July 1896.

Fam. TACHINIDAE.

Chaetogaedia Brauer and Bergenstamm.

(1) *Chaetogaedia monticola* Bigot.

Blepharipeza monticola Bigot, Ann. Soc. Ent. Fr. 1888, p. 91 [California and Kailua, Hawaii].

I have to confess myself unable to unravel the tangle of synonymy which surrounds the genera *Chaetogaedia* B. and B., *Acroglossa* Willist., *Prospherysa* V. d. Wlp. and their allies. For information on the subject see Brauer, Sitzber. K. Akad. Wissensch. Wien. Math.-Nat. Cl., Bd. CIV. Abth. I. pp. 10—13 (1895).

Hab. Hawaii, 4000 ft., August 1892 and 1896, two specimens.—Maui, Haleakala, above 5000 ft., October 1896, three specimens.—Lanai, Halepaakai, 3000 ft., July 1894, one specimen.—Kauai, Halemanu, May 1895, one specimen.

Leucostoma Meigen.

(1) *Leucostoma analis* Meigen?

A female from Molokai, May 1893, may belong to this South European species, especially as it is also recorded by Van der Wulp from Mexico (Biol. Centr. Amer. vol. II. pp. 206—207). It agrees well with the description there given.

Fam. SARCOPHAGIDAE.

Dyscritomyia, gen. nov.

More or less metallic species, with silvery face. Head in profile subquadrangular owing to the somewhat prominent front, cheeks rather broad, quite bare and covered with silvery tomentum, chin (peristome) straight and horizontal or slightly sloping upwards towards the occiput, highly polished in all the species here described. Eyes bare, separated in the male by about one-fifth of the width of the head, in the female by about one-third. Antennae nearly as long as the face, third joint about four times as long as the second, the latter with a strong apical bristle, arista plumose with long hairs, bare towards the tip. Chaetotaxy of head as follows: vertical bristles in ♂ two, parallel and pointing backwards, in ♀ two inner like those of ♂ and two outer shorter, pointing backwards and outwards; ocellar bristles two, pointing forwards; in ♂ a single row of fronto-orbital bristles reaching from the vertex to the base of antennae, the three or four nearest the vertex parallel and pointing backwards, the others decussating in front view, erect when seen laterally; in ♀ the fronto-orbital are not quite so numerous, but near the vertex are two in an outer row pointing forwards. Vibrissa near the oral margin, which is somewhat projecting, a few small bristles at the bottom of the facial ridges, these never ascending more than halfway up the face, chin (peristome) with fine hairs on the surface and a row of strong bristles along the lower margin. Thorax with two humeral bristles, only one post-humeral, three dorso-central before the suture, the most anterior of which is much smaller and weaker than the others, three dorso-central behind the suture, three pairs of acrostichal, of which two are before the suture and the third between the hindmost dorso-central, two intra-alar, three supra-alar, and one presutural which lies lower than the post-humeral. Scutellum with three pairs of lateral bristles, one pair of dorsal and one pair of apical, which decussate. First segment of abdomen without bristles, second and third segments each with two discal and a varying number of marginal bristles, fourth segment and end of abdomen very bristly. Tibiae with scattered bristles, never villose. Wings usually with distinct costal spine.

Type of genus: *D.* [*Catapicephala*] *limbipennis* Thoms.

This genus appears to be near *Catapicephala* Mcq. as defined by Br. and Berg. (Denk. Math. Nat. Cl. K. Akad. Wiss., Bd. LX. p. 162), but differs in the absence of bristles on the facial ridges and in the presence of *discal* setae on the second and third abdominal segments. In *Catapicephala* according to the authors referred to "setae orales longae crassae usque ad radicem antemarum ascendentes. Macrochaetae tantum marginales in segmentis 2—4."

Key to the species of Dyscritomyia.

1. Fore metatarsus of ♂ armed with a curved and pointed spur-like projection ....(*1*) *D. limbipennis* Thoms.
„ „ unarmed, simple ....2.

2. Costa of wings strongly tinged with fuscous ....(*2*) *D. hawaiiensis*, sp. n.
„ „ clear or only slightly dusky ....3.
3. Abdomen dark steely-blue, size larger ....(*3*) *D. claripennis*, sp. n.
„ bright metallic-green ....4.
4. Abdominal segments with purplish-black hind margins ....(*4*) *D. fulgens*, sp. n.
„ „ unicolorous ....(*5*) *D. affinis*, sp. n.

(1) *Dyscritomyia limbipennis* Thomson.

Catapicephala limbipennis Thoms., Eugen. Resa. Dipt. p. 541 (1868).

This and the five following species appear to constitute a new and distinct genus as described above.

The following brief description of the male sex may be added to that of Thomson: Face and sides of frons yellowish-silvery. Second segment of abdomen with a pair of macrochaetae before the middle of the dorsum and another pair a little before the hind margin, third with a pair of dorsal and six hind marginal, fourth segment very bristly. First and third pairs of legs with tarsi of peculiar structure, with very small claws and pulvilli, intermediate pair normal. The fore tarsus is about two-thirds of the length of the tibia, the metatarsus as long as the succeeding four joints together and furnished at the base beneath with a peculiar curved and pointed projection, four apical joints gradually decreasing in length and thickness. The hind tarsus about two-thirds of the length of the tibia, but remarkably compact and tapering in appearance, owing to the peculiarly stunted joints successively decreasing in length and thickness.

HAB. Oahu, two males from Waianae Mts., 4. 1892, are evidently the species whose female is described by Thomson (*l.c.*) from Honolulu—at any rate they agree in all the characters which can fairly be assumed to be common to the two sexes.—Molokai, two females labelled "Molokai Mts., 3000 ft., 9. 1893" and "above Kalawao, Molokai, 4. 8. 93," so closely resemble the males just described that they cannot well be separated. The face is silvery-white, however, without the slightest tinge of yellow.

Plate II. figs. 11—14, male, profile, leg, chaetotaxy.

(2) *Dyscritomyia hawaiiensis*, sp. nov.

♂. Long. corp. 7—8 mm.; al. $6\frac{1}{2}$—$7\frac{1}{2}$ mm. Similar in general appearance to *D. limbipennis* Thoms., but legs of normal structure, with large claws and pulvilli, face silvery-white, second and third segments of abdomen with two discal and six to eight marginal macrochaetae, wings tinged with fuscous on costal margin but not yellowish at the base, and the alulae purer white.

♀. Like the male, but second segment of abdomen with only two discal and two marginal macrochaetae. Closely resembling the females of *D. limbipennis* from Molokai referred to above, but smaller, the wings clearer and without trace of yellow at the base.

HAB. Hawaii, three males and two females, Kona, 4000—6000 ft., July—September 1892.

(3) *Dyscritomyia claripennis*, sp. nov.

♂. Long. corp. 6 mm.; al. 5—5½ mm. A small, slender species. Face silvery-white, thorax dark bluish-green, abdomen slender, dark steely or greenish blue, hinder third of each segment blackish, macrochaetae long, two discal and two marginal on second segment, two discal and six marginal on third segment, wings quite clear, alulae pure white, legs as in *D. hawaiiensis*.

HAB. Hawaii, two males, Olaa, December 1896; one male, Kona, 3000 ft., October 1892.

(4) *Dyscritomyia fulgens*, sp. nov.

♂. Long. corp. 5 mm.; al. 4½ mm. Brilliant metallic green. Face and frons black with silvery tomentum, vertex shining bluish-green, antennae black, chin polished with a greenish tinge. Thorax and scutellum brilliant metallic green, with long macrochaetae. Abdomen brilliant metallic green, with a narrow purplish-black band running across the hind border of each segment, macrochaetae long and conspicuous, second segment with a pair of rather small discal ones and a pair of marginal, third segment with a pair of discal and six hind marginal, fourth segment with several strong bristles on the dorsum and sides. Legs black, the femora slightly tinged with metallic green, claws and pulvilli of normal size. Wings clear, very slightly dusky on the costal margin, costal spine absent, posterior transverse vein nearly straight, alulae yellowish-white.

HAB. Lanai, one male, 2000 ft., February 1894.

(5) *Dyscritomyia affinis*, sp. nov.

♂. Long. corp. 4 mm.; al. 4 mm. Brilliant metallic green like the preceding species, but abdomen with a coppery tinge, and without the dark hind borders to the segments. Wings quite clear, without costal spine, costal margin not dusky, posterior transverse vein with a strong double curve, apical transverse vein more curved than in the preceding species.

HAB. Oahu, two males, Waianae Mts., April 1892.

(6) *Dyscritomyia*, sp.

A male specimen from Haleakala, Maui (8000 ft., April 1894) appears to be quite distinct from any of the above species. As it is in bad condition, however, it is better to defer the description of such a form until better material is obtained. It appears to be characterised by a very broad silvery front and face, clear wings with the basal half of the costa infuscated, while the macrochaetae and soft hairs over the whole surface of the body appear to be of unusual length.

PROSTHETOCHAETA, gen. nov.

Allied to *Dyscritomyia*, but body stouter, eyes of ♂ much closer together, almost touching, chin not highly polished, antennae with arista plumose much nearer to the tip. Thorax with three humeral bristles, two post-humeral, two or three dorso-central before the suture and three behind, four pairs of acrostichal, of which two are before the suture and two behind, two intra-alar, three supra-alar, and one pre-sutural, which lies higher than the second post-humeral. Abdomen in the ♂ with both discal and marginal macrochaetae on the second and third segments, the genitalia prominent.

Type of genus: *P. robusta*, sp. nov.

(1) *Prosthetochaeta robusta*, sp. nov.

♂. Long. corp. 11 mm.; al. 10 mm. Bright metallic green, with a coppery tinge, thorax very slightly plumose. Antennae, palpi and proboscis blackish-brown, face and frons blackish, with silvery tomentum, oral margin distinctly yellowish, chin somewhat shining, transversely wrinkled, covered with fine black hairs on the surface and a row of strong bristles below, occiput with black setae above and long, fine, yellowish hairs in its lower part. First segment of abdomen with two discal and two central marginal macrochaetae, third segment with two discal and a row of about a dozen marginal macrochaetae, fourth segment thickly covered with bristles and long hairs. Wings clear, alulae fuscous, edged with yellowish-white, halteres with brownish stem and yellow club. Legs black, femora with slight metallic tinge and covered with long hairs and bristles, tibiae with scattered bristles, tarsi with very large claws and pulvilli.

HAB. Lanai, one male, Koele Mts., above 2000 ft., July 1894.

A female from Kauai (2—3000 ft., Jan.—Feb. 1897) may belong to this species. The tomentum on the face is decidedly yellowish, the colour of the thorax and abdomen blackish-green, much less shining, and the former distinctly covered with greyish tomentum.

The second segment of the abdomen is without discal macrochaetae, the third and fourth possess both discal and marginal. The wings are distinctly brownish tinged. The body throughout is much barer, owing to the extreme shortness of the finer hairs which are abundant and conspicuous in the male.

Plate II. figs. 15, side view of head, and 16, chaetotaxy of thorax.

(2) *Prosthetochaeta lucilioides*, sp. nov.

♂ ♀. Long. 6—7 mm.; al. 6½—7 mm. Face and frons blackish, with silvery tomentum, oral margin and vibrissal angle reddish-yellow, antennae blackish-brown, palpi reddish-yellow, occiput with black setae above and fine yellowish hairs below. Thorax bright metallic green, somewhat pollinose in front, scutellum green, abdomen bright metallic green with the first segment almost entirely and the base of the second at the sides light yellow, genitalia of ♂ prominent, brownish-yellow. In the ♂ the second and third segments have each two discal and five or six marginal macrochaetae, in the ♀ only fine marginal bristles are present. Legs with the fore coxae and femora light yellow, the latter darker at the tip, with fine pubescence within and three rows of long, regularly disposed bristles on the outer side, intermediate and hind coxae greyish-green, femora yellow with dark tips, all the tibiae dark brown and the tarsi black. Wings distinctly tinged with yellowish-brown, alulae yellowish.

Hab. Hawaii, Olaa, July 1895, one male; Kilauea, one female, September 1895.

Plate II. fig. 17, chaetotaxy of thorax.

(3) *Prosthetochaeta obscura*, sp. nov.

♀. Long. 6½ mm.; al. 7 mm. Similar to *P. lucilioides*, but vertex tinged with dull metallic green, vibrissal angle dark, palpi dark brown, tomentum on face obscure yellowish rather than silvery. Thorax and abdomen duller green, the latter obscurely yellowish at the extreme base. Legs with fore coxae brownish-yellow and fore femora dark brown with a metallic green tinge, otherwise as in *P. lucilioides*. Wings quite clear.

Hab. Hawaii, Kona, 4000 ft., September 1892, one female.

(4) *Prosthetochaeta fasciata*, sp. nov.

♂. Long. 5½—6½ mm.; al. 5—6 mm. Metallic green, more or less covered with white tomentum, segments of abdomen narrowly edged behind with purplish black. Palpi and halteres yellow. Legs dark, the femora tinged with metallic green.

This species appears to be variable, but it may easily be recognized by the narrow dark bands on the abdomen. It is represented in the present collection by three male specimens, from Kaala Mts., Oahu; Halemanu, Kauai; and Halepaakai, Lanai, respectively. In the Oahu example the first humeral and the second post-humeral bristle are extremely small, in the same specimen and that from Kauai I can only distinguish one pair of acrostichal bristles behind the suture, while in the specimen from Lanai there is a distinct third intra-alar bristle. In all the specimens the abdominal macrochaetae are well developed, while the genitalia are less prominent than in the other species. Although specifically very distinct, yet its generic position appears to be doubtful, and I therefore only provisionally include it in *Prosthetochaeta.*

Prosthetochaeta, spp.

A male from Kona, Hawaii, and a female from Lanai, apparently belonging to this genus, differ from any of the above species, but are in too bad a condition for description.

Sarcophaga Meigen.

(1) *Sarcophaga pallinervis* Thomson.

Sarcophaga pallinervis Thoms., Eugen. Resa. Dipt. p. 535 (1868). [Honolulu, California.]

In the present collection are the following specimens, which agree fairly well with the description of this species: Three males and three females from Kona, one male and two females from Kilauea (Hawaii), one female from Koele Mts. (Lanai), two males and two females from Waialua (Oahu), and one male from Koholuamano (Kauai).

In the present state of our knowledge of this difficult genus it is impossible to be sure of the identity of this form and it must be left to the future monographer to determine its value as a distinct species.

Plate II. figs. 18 and 19, chaetotaxy of thorax.

Two other species are described by Thomson from Honolulu, but they are not represented in the collection formed by Mr Perkins. The original descriptions are reproduced below:

(2) *Sarcophaga barbata* Thomson.

Sarcophaga barbata Thoms., Eugen. Resa. Dipt. p. 533 (1868).

"Fusco-grisea, antennis pedibusque nigris, ano obscure ferrugineo, capite griseo-albido; thorace vittis 3 nigris; alis hyalinis; abdomine maculis tessellatis olivaceo- et fusco-micantibus. ♀. Long. 11 mill.

"Patria: Insula Honolulu.

"Praecedenti similis [*S. occipitalis* Thoms.], capitis thoracisque colore, abdomine evidenter tessellato distincta; *S. principi* Wied. affinis. Caput griseo-albidum, occipite genisque pallido-barbatis; facie utrinque setulis pluribus seriatis, superne fronteque lateribus certo situ fulvo-micantibus. Thorax griseo-albidus, vittis 3 dorsalibus et juxta-laterali abbreviata nigris; scutellum vittis 2 nigro-fuscis, setis 2 lateralibus utrinque, apicalibus 2 minus validis et dorsalibus 2 ante apicem minoribus, erectis nigris armatum. Alae hyalinae, alula alba, nervis brunneis, basi dilutioribus, cubitalis ramo submarginali abscissa 1^{a} ultra medium setulis 8—10 ornato. Abdomen segmento 2^{o} et 3^{o} tesselis glaucis distinctis, interiore basali sinistrorum inspecta 2^{i} cum laterali posteriore confluente, 3^{ii} subquadrata, libera; setis apicalibus 8—10 in segmento tertio. Pectus griseum, haud maculatum."

(3) *Sarcophaga dux* Thomson.

Sarcophaga dux Thoms., Eugen. Resa. Dipt. p. 534 (1868).

"Grisea, antennis, vitta media aequali frontali, ano pedibusque nigris, facie griseo-orichalcea, thorace vittis 3 nigris; alis hyalinis, nervis nigricantibus; abdomine vitta media strigisque lateralibus nigro-fuscis, tessellis olivaceo- et fusco-micantibus. ♂. Long. 12 mill.

"Patria: Honolulu.

"Praecedenti [*S. princeps* Wied.] ut ovum ovo simillima, facie lateribus pilis 2—3 tantum instructa, vitta frontali aequali, antrorsum haud dilatata, unguiculisque intermediis haud truncatis tantum distincta."

Fam. MUSCIDAE.

Calliphora Desvoidy.

(1) *Calliphora azurea.*

Musca azurea Fln., K. Vetensk. Akad. Förh. 1816, p. 245, n. 19.

Hab. Hawaii, a female from Kona, 4000 ft., July 1892, does not differ essentially from a British specimen of this species.

(2) *Calliphora vomitoria* Linnaeus.

Musca vomitoria Linnaeus, Syst. Nat. ed. x. vol. i. p. 595, no. 52 (1758).

Hab. Hawaii, a single specimen recorded by L. O. Howard (Proc. Ent. Soc. Washington, vol. iv. no. 4, p. 490, July 1901).

Calliphora, spp.

Two specimens, from Kilauea, Hawaii, June 1895, and Kauai, 2—3000 ft., Jan.—Feb. 1897 respectively, are evidently to be referred to this genus. They are both females in too bad a condition for description.

LUCILIA Desvoidy.

(1) *Lucilia caesar* Linnaeus.

Musca caesar Linnaeus, Syst. Nat. ed. x. vol. I. p. 595, no. 50 (1758).

HAB. Hawaii, three specimens recorded by L. O. Howard (Proc. Ent. Soc. Washington, vol. IV. no. 4, p. 490, July 1901).

PHORMIA Desvoidy.

(1) *Phormia regina* Meigen.

Musca regina Meigen, Syst. Beschr. v. p. 58, no. 16 (1826).

HAB. Hawaii, four specimens recorded by L. O. Howard (Proc. Ent. Soc. Washington, vol. IV. no. 4, p. 490, July 1901).

STOMORHINA Rondani.

(1) *Stomorhina pleuralis* Thomson.

Idia pleuralis Thomson, Eugen. Resa. Dipt., p. 542 (1868).

HAB. Hawaii, two specimens recorded by L. O. Howard (Proc. Ent. Soc. Washington, vol. IV. no. 4, p. 490, July 1901).

STOMOXYS Geoffroy.

(1) *Stomoxys calcitrans* Linnaeus.

Conops calcitrans Linn , Syst. Nat. ed. x. vol. I. p. 604, no. 2 (1758).

One male, small, only about half the usual size, Kona, Hawaii, 4000 ft., 1893.

HAB. Lanai, one female, 2000 ft., January 1894. Also recorded from Hawaii by L. O. Howard (Proc. Ent. Soc. Washington, vol. IV. no. 4, p. 490, July 1901).

HAEMATOBIA Desvoidy.

(1) *Haematobia serrata* Desvoidy.

Haematobia serrata Desvoidy, Myod. 389, no. 3 (1830).

HAB. Hawaii, five specimens recorded by L. O. Howard (Proc. Ent. Soc. Washington, vol. IV. no. 4, p. 490, July 1901).

MUSCA Linnaeus.

(1) *Musca domestica* Linnaeus.

Musca domestica Linn., Faun. Suec. ed. II. p. 453, n. 1833 (1761).

HAB. Hawaii, one male, Olaa, July 1895.—Kauai, one male, Makaweli, 2000—3000 ft., June 1894. Also recorded from Hawaii by L. O. Howard (Proc. Ent. Soc. Washington, vol. IV. no. 4, p. 490, July 1901).

In the Diptera of the "Eugenies Resa" (1868) Thomson describes a species of this genus, to which he at the same time refers (as a variety) a form from Honolulu. The original description is reproduced below.

(2) *Musca flavinervis* Thomson.

Thomson, Eugen. Resa. Dipt. p. 547 (1868).

"Facie albida, vitta frontali media nigrobrunnea, latissima; thorace indumento albido obducto, vittis 4 nigris; alis nervis pallidis; abdomine caesio-subtessellato, basi utrinque macula rufescenti. ♀. Long. 6—7 mill.

"PATRIA: Insulae Rossii.

"*M. corvinae* similis et affinis, vitta frontali media quam laterali plus quam duplo latiore, abdomine macula utrinque basali magna, rufescenti; a *M. dorsomaculata* abdominis pictura, vitta frontali media latiore discedens; a *M. domestica* facie albida abdominisque colore diversa.

"VAR.? Abdomine rufo, vitta media nigra.

"PATRIA. Honolulu."

Fam. ANTHOMYIIDAE.

HYDROTAEA Desvoidy.

(1) *Hydrotaea*, sp.

Two specimens belonging to this genus, and possibly of one species, were taken respectively at Halepaakai, Lanai (3000 ft.), in July 1894, and on the Mts. of Molokai (4500 ft.) in September 1893. They are both females in poor condition and therefore cannot be described with advantage.

OPHYRA Desvoidy.

(1) *Ophyra leucostoma* Wiedemann.

Anthomyia leucostoma Wiedemann, Zool. Mag. I. 82 (1817).

HAB. Oahu, one female, Waianae Mts., April 1892. Four specimens recorded from Hawaii by L. O. Howard (Proc. Ent. Soc. Washington, vol. IV. no. 4, p. 490, July 1901).

(2) *Ophyra aenescens* Wiedemann.

Anthomyia aenescens Wiedemann, Auss. zweifl. Ins. ii. p. 435, no. 29 (1830).

HAB. Lanai, one female, 2000 ft., December 1893.

HOMALOMYIA Bouché.

(1) *Homalomyia canicularis* Linnaeus.

Musca canicularis Linnaeus, Faun. Suec. ed. II. p. 454, no. 1841 (1761).

HAB. Hawaii, two specimens recorded by L. O. Howard (Proc. Ent. Soc. Washington, vol. IV. no. 4, p. 490, July 1901).

LISPE Latreille.

(1) *Lispe argenteifacies*, sp. nov.

♂. Long. corp. 6½ mm.; al. 5½ mm. Frons blackish, orbits and vertical triangle lighter, with greyish-yellow or almost golden tomentum, face cinereous, covered with bright silvery tomentum, cheeks nearly bare, antennae blackish with the apex of the second joint yellow, arista dark, long-haired, palpi yellow with silvery tips. Thorax with yellowish- or brownish-cinereous dorsum, pleurae and scutellum a little lighter, halteres light yellow. Abdomen cinereous, with paired triangular brown spots on the second and third segments, terminal segments with conspicuous hind-marginal and lateral bristles. Femora dark cinereous, their apices and all the tibiae reddish-yellow, tarsi dark reddish-yellow with the three apical joints of the fore pair and the two apical joints of the other pairs more or less blackish, apex of fore tibiae and the fore metatarsi with a cushion of minute black hairs on the inner side, all the femora armed with rows of bristles, fore tibiae without, intermediate and hind tibiae each with a single median bristle on the outer surface. Wings tinged with brownish-yellow, veins yellowish-brown, becoming darker towards the apex, tegulae whitish with yellowish-brown margins.

Hab. Lanai, two males from the Koele Mts. (over 2000 ft.), in July 1894.

A female from Kauai, 2—3000 ft., I. and II. 1897, may belong to this species. It only differs from the males here described as follows: face duller, the tomentum hardly silvery, cheeks more distinctly hairy, abdomen less bristly, with more or less distinct paired spots on all the segments, tarsi somewhat darker, only yellowish towards the base of the metatarsus, intermediate and hind femora much less bristly, wings only very slightly tinged.

Lispe metatarsalis Thoms. (Eugen. Resa. Dipt., p. 562), from Honolulu, must be closely allied to, and may be identical with, this species, but his description is too vague to render this a matter of certainty. For the sake of comparison it is here reproduced:

"Griseo-olivacea, palpis albido-testaceis, antennis nigris, tibiis metatarsoque obscure testaceis; alis subfumatis; abdomine vitta media dorsali, lineam mediam angustam albidam includente, fusco-nigra. ♂. Long. 5 mill.

"Patria. Honolulu.

"Praecedenti [*L. vittipennis* Thoms.] simillima, facie griseo-cervina; thorace haud vittato; halteribus flavis; alis obscuris, subfumatis; abdomine pube griseo-albida, vitta media dorsali fusco-nigra, lineam angustam albidam includente, lateribus punctis nigris, setas et pilos longiores gerentibus; tarsis basi obscure testaceis bene distincta."

(2) *Lispe cupreigena*, sp. nov.

♂. Long. corp. 4½ mm.; al. 4 mm. Very like the preceding species, but smaller, the face cinereous, the cheeks with a peculiar coppery tinge, abdomen with paired spots on the three last segments, tibiae and apices of femora lighter yellow, wings quite clear, tegulae whitish without dark margins.

Hab. Oahu, one male, Waialua, Koolau range, coast, March 1892.

Lispe, spp.

Two other species of this genus may perhaps be represented in the collection obtained by Mr Perkins. One of these, of which there is a single specimen from Kilauea, Hawaii (September 1895) and another from Molokai Mts. (4500 ft., September 1893) is a species about the size of *L. argenteifacies* and similar to it in many respects, but the face is covered with yellow, almost golden, tomentum, the cheeks are more hairy and the fore tarsi are entirely black. The specimens are too badly preserved to be described in detail. The other species is represented by four specimens in poor condition from Koholuamano, Kauai (April 1895) and one equally bad from Kona, Hawaii, 4000 ft. (August 1892). These are about the size of the second species described above, with the face greyish, the fore tarsi reddish-yellow at the base, and the wings slightly tinged.

COENOSIA Meigen.

This genus appears to be represented in the collection before me by about twenty species. I have been unable to trace any description that can safely be applied to even one of these forms and have therefore described thirteen as new and left the rest (owing to bad or insufficient material) undetermined. The majority of the species described below are much larger than the average size of European and North American forms of this genus. The following table will facilitate their identification :

1.	Palpi yellow	2.
	,, black	(*13*) *C. ingens.*
2.	Antennae entirely yellow	3.
	,, partly or entirely dark	7.
3.	Fore tarsi flattened and distinctly broader than the tibiae	(*5*) *C. latimana.*
	,, slender, narrower than the tibiae	4.
4.	Fore and intermediate tarsi light yellow or dark at the tip only	5.
	,, ,, entirely dark	6.
5.	Abdomen 6-spotted, hind femora dark at the tip	(*1*) *C. flavobasalis.*
	,, not spotted, hind femora entirely yellow	(*2*) *C. seminigra.*
6.	Thorax with dorsum and pleurae both covered with yellow tomentum	(*3*) *C. dexioides.*
	,, ,, cinereous and pleurae yellowish	(*4*) *C. valida.*
7.	Abdomen cinereous, unicolorous, not shining	(*12*) *C. rudis.*
	,, shining black, hind borders of the segments very narrowly edged with yellowish-grey	(*6*) *C. dispar*, ♀.
	,, partly yellow	8.
8.	Abdomen with paired spots on the middle segments	(*11*) *C. biseta.*
	,, without paired spots	9.
9.	Abdomen with the three terminal segments banded anteriorly with cinereous ; wings brownish in apical half, clear in basal half	(*10*) *C. longipes.*
	Abdomen not thus banded ; wings uniformly tinged	10.
10.	Yellow of abdomen on the two basal segments	11.
	,, ,, confined to the basal segment	(*9*) *C. striata.*
11.	Antennae entirely dark	(*6*) *C. dispar*, ♂.
	,, partly yellow	12.
12.	Thorax covered with yellow tomentum	(*7*) *C. triangulifera.*
	,, ,, dark grey tomentum	(*8*) *C. kauaiensis.*

(1) *Coenosia flavobasalis*, sp. nov.

♂. Long. 5 mm. ; al. 4½ mm. Front about one-fourth of the width of the head, reddish-brown, orbits and vertical triangle light yellowish-grey ; face silvery white ; palpi pale yellow ; antennae entirely pale yellow, arista dark brown, yellow at the base and distinctly but shortly plumose. Thorax and scutellum yellowish-grey, shoulders more distinctly yellow, pleurae and metanotum light cinereous ; two presutural dorso-central bristles. Halteres light yellow. Abdomen with the first segment entirely yellow, second segment with a large triangular greyish patch which leaves only the anterior angles yellow and a pair of widely separated blackish spots on the dorsum, third and fourth segments entirely grey, each with a pair of spots like those on the second, apical segment grey, unspotted, genitalia reddish-brown, all the segments with long bristles at the sides, the three last with bristles on the dorsum also. Legs yellow, tarsi and the tips of the hind femora darker, all the femora armed with strong bristles, fore and intermediate tibiae with three apical and one subapical bristle, the latter also with a median bristle behind, posterior tibiae with about ten bristles (including the apical ones) arranged in several rows. Wings clear, tegulae greyish-white.

HAB. Hawaii, one male, Olaa, July 1895.

(2) *Coenosia seminigra*, sp. nov.

♂. Long. 3½ mm.; al. 3 mm. Front one-third of the width of the head, central stripe dusky yellow, becoming reddish-yellow near the base of the antennae, orbits and vertical triangle lighter with brightish yellow, almost golden, tomentum, face and palpi light yellow, antennae entirely yellow, basal joints somewhat darker than the third, arista dark brown, lighter towards the base and distinctly pubescent on its basal half. Thorax yellowish-grey with two presutural dorso-central bristles, halteres light yellow. First segment of abdomen bright yellow with a large subtriangular dorsal brown spot, second segment with a much larger brown spot which leaves only the anterior angles, the extreme lateral edge and a very narrow hind margin yellow, third segment wholly blackish, shining, with a yellowish narrow hind margin, fourth segment shining black, genitalia in the single specimen obtained exposed and of complicated structure. Bristles of body long and conspicuous, arranged as in *C. flavobasalis.* Legs with the coxae, femora and tibiae entirely light yellow, tarsi much darker with the apical joints blackish, fore femora with three rows of bristles, intermediate femora with a row of bristles beneath and a single long and fine bristle on the hind surface a little before the middle, hind femora with numerous bristles behind and beneath, arranged in three rows, fore tibiae with three bristles at or near apex and a single median outer one, intermediate tibiae with six apical or subapical bristles, one outer median and one short bristle on the outer side at about one-fourth from the base, posterior tibiae with about ten bristles arranged in several rows as in *C. flavobasalis.* Wings slightly greyish tinged, veins dark, except at the extreme base, tegulae yellowish.

HAB. Hawaii, Kilauea, July 1895, one male.

(3) *Coenosia dexioides*, sp. nov.

♂. Long. 6 mm.; al. 6 mm. Front one-fifth of the width of the head, central stripe reddish-brown, orbits and vertical triangle with yellowish-grey tomentum, face light yellowish-grey, almost silvery, palpi yellow, antennae reddish-yellow, 3rd joint lighter than basal ones, arista dark except at the extreme base and shortly plumose. Thorax with only one large presutural dorso-central bristle, yellowish-grey on the dorsum with a faint indication of three longitudinal lines along the course of the dorso-central and acrostichal bristles, pleurae and scutellum more yellowish, halteres light yellow. First and second segments of abdomen light yellow, the latter with a faint (sometimes hardly perceptible) brownish triangular spot on the dorsum, third and fourth segments yellowish-grey, each with two large adjacent or contiguous black spots on the dorsum. Bristles of abdomen very long, 1st and 2nd segments with long fine hairs but no strong bristles on the dorsum, 3rd segment with two, and 4th segment with six hind marginal bristles, 2nd to 4th segments each with a lateral bristle situated half-way between the fore and hind margins, genitalia somewhat prominent, giving the apex of the abdomen an almost clavate appearance. Legs with the coxae, femora and tibiae entirely light yellow and the tarsi blackish, all the femora with several long bristles, fore and intermediate tibiae with five apical and one long externo-median bristle, hind tibiae with two long bristles near the middle of the outer surface, the one nearer the apex being of unusual length and subtended by another of almost equal length on the inner surface, a few conspicuous bristles also near the apex and three or four short ones on the hinder surface. Wings distinctly yellowish-tinged, with the veins yellow, tegulae also yellowish.

♀. Like the male, but the dark longitudinal lines on the thorax a little more distinct, and the colour of the 1st two abdominal segments darker, on the 2nd a trace of a dark dorsal line or spot, fourth segment without conspicuous bristles.

Hab. Hawaii, two males and one female, Kona, 2000 ft., September 1892.

(4) *Coenosia valida*, sp. nov.

♀. Long. 7½ mm.; al. 7 mm. Front one-fifth of the width of the head, central stripe black, becoming reddish-brown near the antennae, orbits in front with yellowish, behind with cinereous tomentum, vertical triangle cinereous, face light yellowish-silvery, palpi yellow, antennae as in *C. dexioides*, but hairs of arista decidedly shorter. Thorax as in *C. dexioides*, but the dorsum bluish-cinereous and only the pleurae yellowish, scutellum yellowish with a bluish-grey spot on each side near the base, halteres yellow. Three basal segments of abdomen yellow, the first with a small transversely oval brown spot behind the middle of the dorsum, the second with a pair of dark brown spots separated by a cinereous streak, the third with a pair of smaller brown spots more widely separated on a cinereous ground, fourth segment entirely cinereous; the third segment has a pair of strong bristles on the middle of the hind margin and a smaller and finer pair on the anterior third of the dorsum, the other segments without dorsal bristles but furnished as in *C. dexioides* with lateral bristles. Legs as in *C. dexioides*. Wings with the veins slightly infuscated with yellowish-brown, tegulae yellowish.

Hab. Maui, one female, Haleakala, 5000 ft., May 1896.

(5) *Coenosia latimana*, sp. nov.

♂. Long. 7 mm.; al. 6 mm. Front one-fifth of the width of the head, black, vertical triangle shining black, orbits with light yellow tomentum, face silvery yellow, palpi yellow, antennae pale yellow with the basal joints a little darker, arista black, pale yellow at the base and very shortly plumose near the middle. Thorax with two distinct presutural dorso-central bristles, dorsum, pleurae and scutellum light yellowish-grey; mesopleura with a row of unusually numerous fine bristles behind, and near each end of the row a stronger bristle, halteres pale yellow. First two segments of abdomen entirely pale yellow, third segment pale yellow in front, behind yellowish-cinereous with two dark brown spots, fourth segment yellowish-cinereous with two similar but smaller spots; lateral bristles on all the segments as in the previous species, first two segments without dorsal bristles, third with two, and fourth with a row of six on the hind margin, end of the abdomen bristly and somewhat thickened. Legs with the coxae, femora and tibiae entirely light yellow, fore and intermediate tarsi with the first two and the basal half of the third joints yellow, the remaining joints dark brown, hind tarsi ? (absent in the single specimen obtained). Fore femora with three rows of bristles on the outer and hinder surfaces and a short row near the base of the inner surface, fore tibiae with a long fine externo-median bristle and numerous fine shorter hairs beneath, fore tarsi flattened, distinctly broader than the tibiae, the metatarsus narrower in its basal half and furnished beneath with three or four peculiar fine anteriorly curved hairs near the base, at the apex of this and the following joints on each side is a single hair similar to those near the base and also a short strong spine, claws and empodia large. Intermediate femora with a row of spines beneath, the three nearest the base much longer than the rest, a few spines on the anterior surface and two near the tip on the upper surface, intermediate tibiae with a single externo-median bristle, three or four apical bristles and a very strong apical spine beneath, which is nearly as long as the metatarsus, intermediate tarsi slender and a little longer than the tibiae. Hind femora with two rows of rather strong bristles, hind tibiae with three long bristles on the outer surface, a smaller one on the under surface, one on the inner surface, and three or four at the apex. Wings clear in the basal half with the veins light yellow, slightly fuscous and with the veins dark towards the apex, tegulae yellowish-white.

Hab. Lanai, one male, Mts. Koele, over 2000 ft., July 1894.

Plate II. fig. 20, fore tibia and tarsus of ♂.

(6) *Coenosia dispar*, sp. nov.

♂. Long. 6½ mm.; al. 6 mm. Front almost one-third of the width of the head, blackish-brown, vertical triangle light brown, orbits with light cinereous tomentum, face silvery, palpi yellow, antennae entirely black, arista pubescent. Thorax with two presutural dorso-central bristles, dorsum, pleurae and scutellum slaty-grey, halteres bright yellow. Two basal segments of abdomen light yellow with a central longitudinal dark brown stripe, which is widened towards the hind margin of the second segment, remainder of abdomen shining blackish with a little greyish tomentum, all the segments with fine lateral bristles, second with a row of fine hind marginal, third with a row running across the middle and a row of rather stronger hind marginal bristles, fourth segment and end of abdomen with numerous bristles, genitalia prominent. Legs yellow with black tarsi, fore femora with a dark brown streak above near the apex, intermediate and hind femora with broad blackish rings at the apex which do not quite meet beneath; fore femora with a row of strong bristles above and a row of longer ones below, between which are numerous shorter bristles, intermediate femora with two strong bristles near the apex above and a few on the under surface, hind femora with a row above and two rows of somewhat scattered bristles below, fore and intermediate tibiae with four or five apical, and the latter also with a median external bristle, hind tibiae on the inner surface with two bristles, one beyond the middle and the other at the apex, and on the hind surface with about seven long bristles in two rows. Wings slightly dusky towards the apex, with dark veins, tegulae yellowish-white.

♀. Long. 7 mm.; al. 7 mm. Larger and stouter than the ♂, front as in that sex but the orbits ferruginous without tomentum, face with yellow tomentum instead of silvery. Thorax and scutellum blackish-brown, rather shining, pleurae cinereous. Abdomen entirely blackish, shining, segments very narrowly edged with greyish-yellow, bristles on median segments as in the ♂. Fore femora ringed with black like those of the posterior legs. Wings more decidedly dusky, tegulae darker, with yellowish margins. In all other respects like the male.

HAB. Molokai Mts., one male and one female *in cop.* and two females, 4500 ft., September 1893; one female, 6500 ft., September 1893.

(7) *Coenosia triangulifera*, sp. nov.

♂. Long. 5 mm.; al. 4½ mm. Front about one-third of the width of the head, dark reddish-brown, orbits and vertical triangle with yellowish tomentum, face with bright yellow tomentum, palpi yellow, antennae dark brown with the base of the third joint yellow, arista dark and subplumose. Thorax with two presutural dorso-central bristles, dorsum, pleurae and scutellum yellowish cinereous, on the dorsum a faint trace of three brown lines, halteres yellow. First two segments of the abdomen yellow, the first with a longitudinal dark brown central line and the second with a large triangular spot of the same colour, the base of which extends almost across the segment, leaving only a narrow hind marginal edging of yellow, third and fourth segments yellowish cinereous, the third with a dorsal anterior and two lateral posterior ill-defined brown spots, all the segments with lateral bristles, second to fourth with distinct hind marginal bristles, the third and fourth also with discal ones. Legs yellow, fore and intermediate tarsi at the tip and hind tarsi wholly blackish, hind femora with an incomplete blackish apical ring, fore femora above and beneath with strong bristles, intermediate femora with three or four apical bristles above and three or four along the basal half beneath, hind femora with numerous bristles arranged in several rows, fore tibiae with several bristles at or near the apex but no median one, intermediate tibiae with four apical, two subapical, and one externo-median bristle, hind tibiae with about ten bristles in three rows and a strong apical spine beneath. Wings clear, veins dark, tegulae yellowish.

♀. Long. 6 mm. ; al. 6 mm. Like the male, but the front narrower, a little darker, the orbits narrower, antennae with the 1st, 2nd and base of 3rd joints yellow. Thorax with the anterior presutural dorso-central bristle small. Abdomen with an oval brown spot on the first segment placed on the middle of the hind margin, instead of the central longitudinal line, second segment with the angles of the brown spot rounded off, third and fourth segments blackish with the sides and anterior angles cinereous, third segment with two conspicuous bristles near the middle of the hind margin, these being the only strong ones present on the dorsum of the abdomen. Legs yellow with all the tarsi blackish, the hind femora as in the male, and the intermediate femora sometimes darkened at the tip, fore tibiae with a median external bristle, hind tibiae with a very long bristle about the middle of the inner surface and the other bristles somewhat longer than those of the male.

HAB. Hawaii, Kilauea—one male, August 1896, one female, September 1895, one female, December 1896.

(8) *Coenosia kauaiensis*, sp. nov.

♂. Long. corp. 5 mm. ; al. 4½ mm. Front about one-third of the width of the head, dark reddish-brown, orbits and vertical triangle dull cinereous, face with dull yellowish tomentum, palpi yellow, antennae dark brown with the base of the third joint yellow, arista dark, and sub-plumose almost to the tip. Thorax with only one presutural dorso-central bristle, dorsum, pleurae and scutellum dark cinereous, halteres yellow. First segment of abdomen yellow, with a large triangular shining blackish-brown spot on the dorsum and a dark brown spot on each side at the anterior angle, second segment shining blackish-brown with only the anterior angles yellow and the posterior margin yellowish cinereous, third segment shining blackish with the anterior portion narrowly cinereous and the hind margin yellowish cinereous, fourth segment and end of abdomen shining blackish ; all the segments with lateral and the second to fourth with hind marginal bristles. Legs yellow, tarsi darker, hind femora black in their apical half ; bristles much as in *C. triangulifera*. Wings clear, veins dark, tegulae whitish-yellow.

HAB. Kauai, one male, 4000 ft., July 1896.

(9) *Coenosia striata*, sp. nov.

♀. Long. corp. 4½ mm. ; al. 4 mm. Front one-third of the width of the head, dark reddish-brown, orbits and vertical triangle lighter, with obscure greyish tomentum, face with greyish-yellow tomentum, palpi light yellow, antennae obscure yellowish-brown, the basal joints darker, arista dark, pubescent in the basal half. Thorax with two presutural dorso-central bristles, obscure cinereous with three narrow stripes on the dorsum and the region between the humeri and the insertion of the wings brownish, pleurae and scutellum cinereous, halteres yellow. Abdomen shining blackish, with the first and fifth segments obscure reddish-yellow, all the segments with a narrow yellowish hind margin, first three with lateral and the third and fourth with hind marginal bristles. Legs yellow, intermediate and hind femora darker at the tip and all the tarsi black ; fore femora with three rows of bristles, those on the under surface much longer than the rest, intermediate and hind femora with one row of bristles in front, and two rows beneath, the former with two subapical bristles above and the latter with one, fore tibiae with two subapical bristles in front and one apical bristle beneath, otherwise unarmed, intermediate tibiae with one externo-median, two subapical and three apical bristles, hind tibiae with seven bristles, two on the outer, two on the hinder, and one on the inner surface, and two at the apex beneath. Wings dusky, especially in the apical half, veins dark, except at the base, tegulae slightly tinged with yellow.

HAB. Oahu, one female, Kawailoa gulch, April 1893.

(10) *Coenosia longipes*, sp. nov.

♀. Long. corp. 8 mm. ; al. 7½ mm. Front one-fourth of the width of the head, reddish-brown, the orbits, vertical triangle and face covered with light yellowish-grey tomentum, palpi yellow, antennae with the first two and the base of the third joints yellow, rest of the third joint dark brown, arista very long, dark brown, and subplumose on its basal third. Thorax with only one prominent presutural dorso-central bristle, dorsum shining, cinereous, with three dark brown stripes before the suture, scutellum concolorous, pleurae much lighter, halteres light yellow. Abdomen shining blackish, first segment with a large subquadrate very pale yellow spot on each side at the base, extending over the side to the venter and behind on to the lateral anterior portion of the second segment, second to fourth segments each with a narrow cinereous band on the anterior margin, on the second and third this band is slightly emarginate in the middle, all the segments very narrowly edged behind with yellowish-white ; strong lateral bristles are present on all the segments, first two segments with fine hind marginal, third and fourth each with two strong dorsal and several hind marginal bristles. Legs long and slender, fore coxae and all the femora yellow, of the latter the front pair at the tip and the two posterior pairs in their apical half dark brown, tibiae brownish-yellow, tarsi black ; all the femora with three rows of long conspicuous bristles, fore tibiae with a long and intermediate tibiae with a rather shorter externo-median bristle, both with three or four apical bristles, the intermediate pair with a very long apical one beneath, hind tibiae with a long bristle at the middle of the inner surface, three long ones on the outer surface and four or five apical or subapical ones, fore tarsi with a long slender hair on each side at the tip of each joint. Wings clear in their basal half, but distinctly infuscated in their apical half, veins dark, tegulae hyaline with yellowish margins.

HAB. Hawaii, one female, Kilauea, December 1896.

(11) *Coenosia biseta*, sp. nov.

♀. Long. 6½ mm. ; al. 6 mm. Front one-fifth of the width of the head, black, orbits, vertical triangle and face with yellowish-grey tomentum, palpi yellow, antennae obscurely yellowish with the apical two-thirds of the third joint dark brown, arista long, shortly plumose on its basal half. Thorax with two presutural dorso-central bristles, the anterior of which is much smaller than the other, dorsum, pleurae and scutellum light yellowish-cinereous, halteres light yellow. Abdomen with the first segment entirely yellowish, second yellowish with two dark brown spots on the middle of the dorsum, between the spots the ground-colour is cinereous, third cinereous with two subquadrate black spots, the anterior and posterior margins both yellowish, fourth cinereous with a large black spot covering the greater part of the dorsum ; all the segments with lateral bristles, second segment with a hind marginal row of weak bristles, third segment with two small bristles near the middle of the dorsum, a pair of very strong and conspicuous bristles near the middle of the hind margin, and a single weaker bristle on each side of the latter, fourth segment with a few weak hind marginal bristles. Legs including the fore coxae yellow, tarsi blackish ; fore femora with four and intermediate femora with three rows of conspicuous bristles, the latter also with two subapical bristles above, hind femora with three rows of long bristles, fore and intermediate tibiae with a long, conspicuous externo-median bristle and several strong apical and subapical bristles, that beneath the apex of the intermediate pair nearly as long as the metatarsus, hind tibiae with two very long bristles on the outer surface, one very long curved one near the middle of the inner surface, one long subapical one on the hinder surface and three or four shorter ones at the apex, fore tarsi similar to those of *C. longipes*. Wings slightly yellowish-tinged, veins dark, tegulae yellowish.

HAB. Hawaii, one female, Olaa, December 1896.

(12) *Coenosia rudis*, sp. nov.

♂. Long. corp. 4—4½ mm.; al. 3½—4 mm. Front one-third of the width of the head, blackish, orbits and vertical triangle with dull yellowish-grey and face with brighter yellowish tomentum, palpi yellow, antennae reddish-yellow with the apical half of the third joint blackish, arista blackish, pubescent in the basal half. Thorax with two unequal presutural dorso-central bristles, dorsum, pleurae and scutellum cinereous, halteres bright sulphur-yellow. Abdomen cinereous, unicolorous, third and fourth segments with some rather weak hind marginal bristles and all the segments with lateral bristles. Legs yellow, tarsi more obscurely yellow, brownish towards the tip, fore femora with a row of bristles above and a row of longer ones below, intermediate femora with two or three scattered bristles on the fore and hind surfaces, and two subapical ones above, hind femora with two rows, fore and intermediate tibiae with the usual apical and subapical bristles, the latter also with an externo-median one, hind tibiae with six or seven strong bristles on the outer and hind surfaces arranged in pairs. Wings clear, veins dark, tegulae yellowish.

Hab. Maui, two males, Haleakala, 5000 ft., March and April 1894.

(13) *Coenosia ingens*, sp. nov.

♀. Long. corp. 7—8 mm.; al. 6—7½ mm. A large and comparatively stout species. Front about one-fourth of the width of the head, wholly black with the orbits and vertical triangle shining, face blackish with only a slight brownish-grey tomentum, palpi and antennae entirely black, arista slightly pubescent near the base. Thorax with two unequal presutural dorso-central bristles, dorsum, pleurae and scutellum shining black, shoulders and pleurae with a little greyish tomentum, halteres bright yellow. Abdomen shining black, segments very narrowly edged behind with greyish-white, only the third and fourth segments with conspicuous dorsal bristles, the former with two in the middle of the dorsum and a row along the hind margin, the latter with both dorsal and hind marginal bristles. Legs entirely black and shining, only the fore knees slightly reddish, fore femora with four rows of rather fine, long bristles, intermediate and hind femora each with three rows of similar bristles, the former also with two and the latter with one subapical bristle on the upper surface, fore and intermediate tibiae with the usual apical and a long externo-median bristle, the latter in the fore pair very long, hind tibiae with two long bristles on the outer surface, one long bristle about the middle of the inner surface, one long porrect bristle near the apex of the hind surface, and three or four shorter apical ones. Wings more or less brownish-tinged, especially towards the anterior border, veins dark, tegulae whitish, the upper one darker.

Hab. Molokai Mts., three females, 4000 ft., May 1893.—Maui, one female, Haleakala, 5000 ft., October 1896.—Hawaii, one female, Kilauea, September 1895.

(14) *Coenosia*, sp.

A female specimen, in bad condition, from Kilauea, Hawaii (September 1895), is quite distinct from any of the species here described. The thorax is dark brown with light cinereous shoulders and pleurae, and the commencement of two dorsal stripes of the same colour on the middle of the anterior margin. The abdomen appears to be dark brown with three pairs of large black spots. The legs are blackish with reddish-yellow knees.

(15) *Coenosia*, sp.

A small species (3 mm.) with cinereous unicolorous thorax and abdomen and blackish femora, is represented by four specimens from Molokai Mts. (4000—6500 ft.), June to September 1893, but they are not in good enough condition for description.

(16 and 17) *Coenosia*, spp.

Two species, not described here, are also represented in the collection formed by Mr Perkins, but the material is in too bad a condition for description. They are from Kona, Hawaii, and Molokai Mts. respectively.

ACRITOCHAETA, gen. nov.

Front about one-third of the width of the head in both sexes, slightly prominent; face slightly inclined backwards and deeply excavated, the cheeks and chin extremely narrow, facial ridges sharp-edged, a single strong vibrissa and a few shorter bristles near the oral margin, chin with a row of fine, short bristles. Eyes bare, large, oval. Antennae large, inserted considerably above the middle of the face and reaching almost to the oral margin, arista almost bare, very thick in its basal half and gradually tapering towards the apex. Proboscis a little longer than the head, palpi long and rather thick but not clavate. Thorax with very short and inconspicuous macrochaetae on the dorsum, so that it is difficult to distinguish them from the surrounding pubescence; of the dorso-central bristles four post-sutural may be distinguished which decrease much in size from behind, before the suture are three or four very small bristles of which perhaps two may be reckoned as macrochaetae; about six irregular rows of tiny bristles may be distinguished between the two rows of dorso-central bristles, and between the last pair of the latter four more distinct pre-scutellar bristles; scutellum with two small dorsal, two decussating apical and a large and small pair of lateral bristles. Abdomen ovoid and a little broader than the thorax, in the male with conspicuous subanal appendages, in both sexes without conspicuous bristles on the dorsum. Legs simple, with only a few weak bristles, claws and pulvilli minute. Wings broad and short, broadly rounded at the tip, and without costal spine; auxiliary and first longitudinal veins rather widely separated, the latter ending a little beyond the middle of the wing, third longitudinal vein distinctly curved towards the fourth, anal vein not reaching the margin, anterior transverse vein about the middle of the discal cell and distinctly before the tip of the first longitudinal vein, posterior transverse vein straight; tegulae large, the under scale about twice as long as the upper.

This genus seems to be allied to *Charadrella* V. d. Wlp. and *Pygophora* Schiner, but differs from both in the extremely small cheeks and chin, the bare arista, the shape of the abdomen, and the nature of the bristles.

(1) *Acritochaeta pulvinata*, sp. nov.

♂ ♀. Long. corp. ♂ 3½, ♀ 4 mm.; al. ♂ 2½, ♀ 3 mm. Front reddish-yellow near the antennae, gradually darkening to blackish-brown near the ocelli, orbits and vertical triangle in the ♂ with yellowish, in the ♀ with light cinereous tomentum, face obscure greyish-yellow, palpi yellow in the ♂, blackish in the ♀, antennae dark brown with the basal joints obscure reddish-yellow, arista dark at the tip, reddish-yellow in its basal half. Thorax cinereous with three narrow brown longitudinal lines, shoulders yellowish, in one specimen conspicuously reddish-yellow, pleurae light cinereous, scutellum cinereous with reddish-yellow apex, halteres pale yellow. Abdomen reddish-yellow, gradually becoming cinereous towards the tip, first segment with a more or less distinct pair of brown spots near the posterior margin, second and third each with a pair of large conspicuous triangular dark brown spots, the bases of which nearly touch the posterior margin, fourth segment with a pair of similarly-coloured small round spots; in addition to these markings a dark, more or less interrupted line runs down the centre of the dorsum, becoming more distinct on the middle segments. Legs yellow, in the ♂ the apical half of the fore tibiae and the fore tarsi are blackish, while the fore femora are peculiarly bent upwards and furnished with a small pad or cushion of tiny hairs on the upper surface near the apex, ♀ with the fore femora (except at the base and apex), the apical half of the fore tibiae and the fore tarsi blackish, and the tips of the hind tibiae slightly darkened; all the femora with weak bristles on the lower surface, those on the fore femora a little stronger in the female, intermediate pair with a strong subapical bristle above, fore tibiae only with a few apical or subapical bristles, intermediate pair in addition with a small externo-median bristle and hind pair with about four short ones on the outer and hinder surfaces. Wings hyaline and strongly iridescent, veins light brown, tegulae yellowish.

HAB. Hawaii, one male and two females, Olaa, July 1895.

Plate II. figs. 21, head of ♂, side view; 22, fore leg of ♂; and 23, wing.

Hoplogaster Rondani.

(1) *Hoplogaster* (?) *dubia*, sp. nov.

Long. corp. 3—3½ mm.; al. 2½—3 mm. Front one-third of the width of the head, reddish-yellow anteriorly, darker behind, orbits and vertical triangle with cinereous tomentum, cheeks and chin with a yellowish tinge, antennae short and thick, the two basal joints reddish-yellow and the third joint blackish, arista bare and dark. Thorax cinereous, with 1 presutural and 3 post-sutural dorso-central bristles, scutellum cinereous with reddish-yellow apex, halteres yellow. Abdomen variable in colour, in some specimens dark cinereous, in others with more or less of a reddish-brown or even reddish-yellow tinge, fourth segment in the male with hind marginal bristles, otherwise without conspicuous bristles, genitalia of the ♂ rather prominent. Legs yellow with black tarsi, fore femora with a row of bristles above, intermediate femora with three subapical bristles above, hind femora with a few bristles near the apex above and below, tibiae with large apical and subapical bristles, the hind pair also with two pairs on the outer surface and a single bristle on the inner surface just beyond the middle. Wings hyaline, veins yellowish, anterior transverse vein a little before the termination of the first longitudinal, anal vein short, tegulae small, subequal, transparent with reddish-yellow margins.

Hab. Hawaii, two males and four females, Olaa, July 1895.

On account of the small, subequal tegulae I have placed this species provisionally in the genus *Hoplogaster* Rond., although I do not feel quite satisfied that such is the correct position for it.

Anthomyidae, spp.

Three species, each represented by a single female specimen, appear to belong to the *Coenosiinae*, but in the absence of better material it is wiser to defer their description. They were obtained at Haleakala (Maui), Koholuamano (Kauai), and Kawailoa gulch (Oahu) respectively.

Fam. SCIOMYZIDAE.

Sciomyza Fallen.

(1) *Sciomyza*, sp.

A specimen belonging to this genus, without antennae and otherwise in too poor a condition for description, was obtained on the coast at Waialua, Oahu, in February 1893.

Fam. ORTALIDAE.

ACROSTICTA Loew.

(1) *Acrosticta pallipes*, sp. nov.

♂ ♀. Long. corp. 3—3½ mm.; al. 3—3½ mm. Very like *A. scrobiculata* Lw., but differs as follows: legs pitchy-brown, anterior coxae and femora entirely yellow, the former somewhat metallic at the base, intermediate femora towards the tip and tibiae more or less yellow, intermediate and hind metatarsi yellow. Wings with the first and basal half of the second costal cell fuscous, apical half of the second clear, third dark; posterior transverse vein more outwardly inclined, and parallel with the inner one.

HAB. Hawaii, one male, Olaa, November 1896; one female, Kauai, 4000 ft., October 1895.

Only three other species of this genus are known, viz. *A. scrobiculata* Lw., from Mexico and Brazil; *A. foveolata* Lw., from Brazil; and *A. dichroa* Lw., from California (San Francisco).

EUXESTA Loew.

(1) *Euxesta annonae* Fabricius.

Musca annonae Fab., Ent. Syst. 358, 189 (1794).
Tephritis annonae Fab., Syst. Antl. IV. p. 320, 19.
Ortalis annonae Wied., Auss. Zweifl. II. p. 463, 11.
Urophora quadrivittata Macq., Suites à Buffon, II. p. 456, 5.
Euxesta annonae Loew, Berl. Ent. Zeitschr. XI. p. 305, tab. II. f. 13 (1867), and Monog. Dipt. N. Amer. Pt. III. p. 162, tab. IX. f. 13 (1873).

HAB. Oahu, a male from Waialua, coast, February 1893; Hawaii, a female from Kona, 1500 ft., September 1892. These specimens agree so well with Loew's description and figure that I hesitate to regard them as distinct. The species has been hitherto recorded from South America and the West Indies.

Fam. TRYPETIDAE.

DACUS Meigen.

Although the following species is not in the collection formed by Mr Perkins, yet, in order to render the present contribution more complete, I have thought it advisable to reproduce the original description.

(1) *Dacus cucurbitae* Coquillett.

Dacus cucurbitae Coquillett, Ent. News Philad. 1899, p. 129.

"Head light yellow, the occiput, except the sides and upper margin, reddish-yellow, an ocellar black dot, front marked with a brown spot in front of its center and with three pairs of orbital brown dots, a black spot on each side of the face near the middle and a brown spot on the middle of each cheek; antennae, palpi and proboscis yellow, the latter mottled with brown. Thorax reddish-yellow, the humeri, a median vitta on the posterior half of the mesonotum, another on each side above the insertion of the wings, uniting with an irregular band which extends upon the pleura to the upper part of the sternopleura, also a large spot on each side of the metanotum, encroaching upon the hypopleura, light yellow; scutellum, except its extreme base, light yellow, bearing two bristles. Abdomen light yellow on first two segments, reddish-yellow on the others, the extreme base, a fascia at the bases of the second and third segments, usually a lateral spot on the fourth and fifth, also a dorsal vitta on the last three segments, blackish or brownish; first segment of the ovipositor of the female slightly longer than the fifth segment of the abdomen. Wings hyaline, the apex of the subcostal cell from a short distance in front of the apex of the auxiliary vein, the marginal and submarginal cells, the median third of the first basal cell and a large spot in upper outer corner of the first posterior cell, brown; anal cell brown, this color encroaching on the third posterior cell and bordering the sixth vein almost to its apex; posterior crossvein bordered with brown, this color extending to the hind margin of the wing; upper end of the small crossvein also bordered with brown. Halteres light yellow. Legs light yellow, the broad apices of the femora and the last four joints of the tarsi reddish-yellow, hind tibiae reddish-yellow or dark brown. Length 6 to 8 mm."

HAB. Oahu.—"Honolulu, Hawaii. Two males and two females bred by Mr George Compere from larvae living in green cucumbers. Type No. 4207, U. S. Nat. Museum."

Five specimens of this species are also recorded from Hawaii by L. O. Howard (Proc. Ent. Soc. Washington, vol. IV. no. 4, p. 490, July 1901).

TEPHRITIS Latreille.

(1) *Tephritis crassipes.*

Trypeta crassipes Thoms., Eugen. Resa. p. 583, n. 260 (1868).

HAB. Hawaii, one male, Kona, 4000 ft., July 1892; one female, Kona, 4000 ft., September 1892.—Kauai, one female, 2000—3000 ft., Jan.—Feb. 1897.—Oahu, one female, Waianae Mts., 3000 ft., April 1892. All agree exactly with Thomson's description.

(2) *Tephritis limpidapex*, sp. nov.

♂. Long. corp. 4 mm.; al. 4 mm. Front dark purplish-brown, orbits and vertical triangle obscure cinereous, face brownish-yellow with a slight greyish tomentum, palpi dark brown, antennae short, reddish-brown. Thorax slaty-grey, with two pairs of macrochaetae on the dorsum, which is also covered with golden pubescence, pleurae yellowish-grey with copper-coloured pubescence, scutellum slaty-grey with two setae and covered with golden pubescence. Abdomen slaty-grey, likewise covered with golden hairs and with a few black bristles at the tip. Legs light reddish-brown. Wings with a fuscous reticulated pattern which commences near the base of the wing but leaves a comparatively large space at the apex quite clear, first costal cell quite clear, second clear with two or three small brown spots touching the costal vein, third clear with an oblique hour-glass-shaped brown spot, marginal cell with two large and a third small limpid spot touching the costa, the former extending into the submarginal cell, which has three limpid spots touching the costa, the posterior of these forming the upper portion of the clear apical section of the wing, first posterior cell with the reticulation covering its basal two-thirds, first basal and discoidal cell entirely covered with fuscous, each with many small subequal limpid spots, third posterior and anal cells with very little reticulation.

HAB. Maui, one male, Haleakala crater, October 1896.

Plate II. fig. 24, wing.

(3) *Tephritis cratericola*, sp. nov.

Long. corp. ♂ 3—3½ mm., ♀ incl. ovipositor 4—5 mm.; al. 3—4 mm. Front reddish-brown, sometimes a little lighter behind, orbits, vertical triangle and a narrow central stripe (which is sometimes absent) cinereous, occiput with very pale setae, face cinereous or with a yellowish tinge, antennae blackish, with the first two joints lighter, and in the female sometimes yellowish-brown, proboscis and palpi yellow, the latter with dark tips. Thorax dark cinereous with three narrow, rather indistinct, blackish lines on the dorsum, which with the pleurae is thinly covered with very pale pubescence, scutellum with two setae and similar pubescence, halteres dark fuscous. Abdomen blackish, slightly shining, covered with short black hairs and a few bristles on the terminal segment, genitalia of ♂ conspicuous, blackish with pale pubescence, ovipositor of ♀ shining black, as long as the four preceding segments. Legs blackish-cinereous, fore tibiae, fore and intermediate knees and all the tarsi lighter, varying from reddish-yellow to pitchy-brown, fore femora with bristles above and below, fore metatarsus of ♂ expanded, shorter than the succeeding joint and furnished with conspicuous long bristles. Wings hyaline with fuscous reticulation and showing the following principal features:

two conspicuous patches of fuscous, the larger one subquadrate, extending from the costa to the fourth longitudinal vein, with its inner edge in a line with the posterior transverse vein and generally including only a single hyaline spot which touches externally the tip of the second vein, the other patch much smaller, filling up all but the apex of the third subcostal cell; from the large fuscous patch three irregular fuscous streaks extend to the posterior margin of the wing, one running over the posterior transverse vein and the other two crossing the middle of the second posterior cell, from the inner edge of the same patch a fuscous streak runs across the submarginal and marginal cells, reaching the costa about opposite the anterior transverse vein.

HAB. Maui. This species is represented in the collection by 33 males and 28 females, all taken within the crater of Haleakala, at a height of 8000 ft. Two of the males were captured in April 1894, all the other specimens in October 1896.

Plate II. fig. 25, wing.

PHAEOGRAMMA, nov. gen.

Head in profile subquadrate, front unusually flat and longer than the face, which is slightly concave with the oral margin slightly projecting, chin with a single dark and a few light-coloured bristles, occiput with short stubby setae, one of which occurs also on each side of the front, behind the uppermost fronto-orbital bristles, the latter four in number; the three anterior pointing forward and the posterior one backward, antennae nearly as long as the face, third joint concave in front and obtusely pointed, arista thick and very slightly pubescent, eyes broadly and obliquely oval, proboscis short and stout, palpi clavate. Thorax with two pairs of bristles on the dorsum, the anterior pair further apart than the posterior, scutellum subtriangular with only two bristles. Abdomen conical. Legs, except the fore femora, unarmed. Wings long and rather narrow, much exceeding the abdomen, costal spine conspicuous, costa slightly undulate, first longitudinal vein bristly, third unarmed and parallel with the fourth, the latter in its last section slightly undulate, otherwise quite straight, discal cell long and narrow, the anterior transverse vein very near its apex, much beyond the tip of the first vein and about two-thirds of the length of the wing from its base, anal cell drawn out into a short point, picture of the wings in the single species described consisting of three transverse bands in the apical half and two bands running longitudinally from the base and uniting with the innermost transverse band.

Type of genus: *P. vittipennis*, sp. nov.

The peculiarly flattened front, the bisetose scutellum and the unusual pattern of the wings will readily serve to distinguish this genus from its allies.

(1) *Phaeogramma vittipennis*, sp. nov.

♂ ♀. Long. corp. 3—3½ mm.; al. 3—3½ mm. Front yellow in front, a little darker behind, orbits and vertical triangle cinereous with bright almost silvery tomentum, occiput with a row of light yellow short and thick setae running entirely round from vertex to chin, the uppermost four on each side longer and stouter than the rest, with an interval between each set which is just behind the ocelli, behind the uppermost fronto-orbital bristle on each side is also a similar light yellow seta, face cinereous below the antennae, cheeks, chin, antennae and palpi yellow, proboscis a little darker. Dorsum of thorax very light cinereous, with a central longitudinal olive-brown stripe, which is narrow in front but becomes much broader behind, besides the macrochaetae the entire surface is covered with short golden hairs, pleurae and scutellum yellowish-brown, halteres obscure brownish with lighter knob. Abdomen dark olive-brown, shining; in the male covered with rather long golden hairs, in the female these hairs are extremely short so that the segments appear pitted rather than hairy, ovipositor shining blackish, about as long as the two preceding segments and covered with golden hairs on its basal half. Legs entirely reddish-yellow, fore femora with two rows of short bristles on the upper surface and a row of four or five much longer ones below, intermediate tibiae with black apical spine. Wings hyaline with fuscous bands as follows: a longitudinal band running from the base along the costa for two-thirds of the length of the wing and filling up all the space between the costal and the third longitudinal vein, near its termination a more or less distinct hyaline spot, a longitudinal band running from the base over the anal cell (which it completely fills) and along the fifth longitudinal vein to its termination. Connecting the terminations of these longitudinal bands is a transverse one which runs over both transverse veins, beyond this is a second transverse band, the outer edge of which is concave and commences exactly at the tip of the second longitudinal vein, and a third shorter one at the extreme apex of the wing which includes the tips of the third and fourth longitudinal veins.

Hab. Molokai Mts., two males and one female, 3000 ft., September 1893.

Plate II. figs. 26, head, side view; and 27, wing.

Fam. PIOPHILIDAE.

Piophila Fallen.

(1) *Piophila casei*, Linnaeus.

Musca putris β. casei Linn., Faun. Suec. 2nd ed. p. 456, n. 1850 (1761).

A single specimen, unfortunately without head, from Kona, Hawaii, 4000 ft., August 1892, agrees well with British examples of this species.

Fam. EPHYDRIDAE.

Notiphila Fallen.

(1) *Notiphila insularis*, sp. nov.

♂ ♀. Long. corp. 3½ mm.; al. 3½ mm. Front brownish-grey, with the orbits and a central stripe light yellowish-grey; face light yellowish-grey, with two or three bristles near the oral margin; proboscis reddish-brown, palpi light yellow; antennae light reddish-yellow, the third joint only very slightly infuscated towards its tip. Thorax and scutellum light yellowish-grey, pleurae and metanotum light greenish-grey, halteres light yellow. Abdomen greenish-grey, with four rather obscure brownish spots on the first and second segments, two similar ones on the third, and two very small ones on the fourth. Legs with the fore coxae and all the femora dark brown, covered with greenish-grey tomentum, knees, tibiae and tarsi entirely reddish-yellow; intermediate femora with a few bristles in the apical half beneath, intermediate tibiae with three conspicuous bristles on the outer surface. Wings hyaline, veins yellowish-brown.

Hab. Oahu, one male and one female, Waialua, Koolau range, February 1893.

Brachydeutera Loew.

(1) *Brachydeutera argentata* Walker.

Notiphila argentata Walker, Ins. Saundersiana Dipt. p. 407 (1856).

Brachydeutera dimidiata Loew, Monog. Dipt. N. Amer. I. p. 163 (1862).

Hab. Hawaii. A single specimen of this already well-described North American species was obtained by Mr Perkins at Olaa in July 1895. Three specimens are also recorded from the same island by L. O. Howard (Proc. Ent. Soc. Washington, vol. IV. no. 4, p. 490, July 1901).

Scatella Desvoidy.

(1) *Scatella hawaiiensis*, sp. nov.

♂ ♀. Long. corp. 2½—2¾ mm.; al. 2½ mm. Front shining black with a slight greenish tinge; face shining greenish-black with a little brownish tomentum, a pale spot below the base of each antenna, a row of three conspicuous bristles down each side and the oral margin fringed with fine hairs; antennae quite black, arista with distinct pubescence on the upper side. Thorax shining brownish-black, the shoulders and front margin greenish-cinereous, pleurae and metanotum greenish-cinereous, a brown patch on the mesopleurae, scutellum shining black, with two large subapical and two small lateral bristles, halteres light yellow; dorsum of thorax with three pairs of dorso-central bristles. Abdomen shining blackish. Legs entirely black. Wings brownish-grey, with five pellucid spots, the largest in the submarginal cell and subquadrate, two in the first posterior cell nearly as large, and one on each side of the posterior transverse vein, that on the inner side being much smaller than the others, subrotund and touching the fifth longitudinal but not reaching the fourth; the three upper spots stretch entirely across the cells in which they are contained; costal vein reaching the tip of the fourth vein.

Hab. Oahu. Eight males and six females were obtained on wet rocks in the Kaala Mts., at a height of 2000 ft., in March 1893.

This species appears to be closely allied to *S. stagnalis* Fln., but is distinguished from the latter by possessing three bristles on the face. It can, moreover, be distinguished from most of the species (but not all) with spotted wings by possessing three pairs of dorso-central bristles on the thorax, a character which belongs rather to the group possessing clear wings.

Plate III. fig. 1, wing.

Fam. DROSOPHILIDAE.

Idiomyia, gen. nov.

Front slightly convex, with three fronto-orbital bristles, the anterior about midway between the insertion of the antennae and the vertex and pointing forward, the other two pointing backward, orbital stripes abruptly terminated about or a little beyond the middle of the front, to which the vertical triangle nearly reaches; face slightly excavated, the oral margin distinctly reflexed, a few small bristles at the vibrissal angle, proboscis very thick, palpi thick and clavate, eyes large, round or slightly oval and distinctly pubescent. Antennae short, the first joint hardly distinguishable, the second large with a convex upper surface, so that between it and the third there is a distinct indentation, third joint large, oval and rounded at the extremity, arista bipectinate, sometimes also with short pubescence, bare at the base beneath. Thorax with two pairs of widely-separated macrochaetae behind the middle, scutellum subtriangular, rather flat, with a pair of lateral bristles and a pair of decussating apical ones. Abdomen slender and narrower than the thorax, subconical and obtuse in the male, pointed in the female; the latter sex possesses a more or less upturned ovipositor and a peculiar supra-anal process furnished with long stiff hairs. Legs long and slender, with few or no bristles. Wings much longer than the abdomen, auxiliary vein rudimentary, first longitudinal vein not quite reaching a third of the length of the wing, second and third longitudinal veins more or less curving upward in their basal half and then running parallel or nearly so to their termination, the third ending at the tip of the wing, fourth vein nearly straight, fifth straight as far as the posterior transverse vein and then curved suddenly downwards to the posterior margin of the wing, sixth rudimentary; between the third and fourth longitudinal veins two transverse veins are present, one opposite or a little beyond the termination of the first longitudinal vein, the other opposite or a little beyond the posterior transverse vein, the two last sections of the fourth vein as thus divided about equal in length, discal cell united with the posterior basal cell, anal cell present but inconspicuous.

Type of genus: *I. perkinsi*, sp. nov.

As only one male of this genus is represented in the collection (that of the typical species) it is impossible to say yet whether certain characters, such as the strong curvature of the costa and the tuft of hairs on the fore tibiae are of specific or only sexual value, but I rather suspect the latter to be the case.

Key to species.

1. Scutellum dark with yellow median stripe .... 2.
   ,, entirely dark on dorsum, with bright yellow margin .... (*4*) *I. picta.*
2. Face, antennae, and palpi black .... 3.
   Face yellowish, antennae with basal joints obscurely yellow, palpi yellow ...... (*3*) *I. oahuensis.*
3. Metanotum with yellow median stripe, femora with only the bases and tips infuscated .... (*1*) *I. perkinsi.*
   Metanotum entirely black, femora blackish with tips yellowish .... (*2*) *I. obscuripes.*

(1) *Idiomyia perkinsi*, sp. nov.

♂. Long. corp. 7 mm.; al. 8 mm. Front reddish-yellow with a transverse brown band behind the antennae, orbits as far as the most anterior fronto-orbital bristle and the vertical triangle black, face, proboscis, palpi and antennae black, the second joint of the latter with a tuft of stiff, black hairs, arista with long hairs along the whole length above and the apical half below, also with a very short thick pubescence between the long hairs. Thorax with the greater part of the dorsum blackish, anterior edge yellow with two median longitudinal black lines, humeri and lateral edges yellow, pleurae yellow with a shining black patch above the front coxae and a smaller one beneath the root of the wings, scutellum and metanotum black with yellow median stripe, halteres light yellow. Abdomen blackish-brown, shining, with obscure yellow markings at the anterior angles of each segment, the whole of the dorsum covered with fine bristles which are somewhat longer near the hind margin of each segment. Legs reddish-yellow, the apices and bases of all the femora and the two hinder pairs of tibiae slightly infuscated, fore femora with a few bristles on the outer side, fore tibiae with a conspicuous tuft of hairs at the base, intermediate tibiae with a strong subapical and a single apical bristle, hind tibiae with only a rather weak subapical bristle. Wings slightly tinged with yellowish-brown, the apex broadly infuscated, leaving a very narrow margin between the tips of the second and third veins and a little broader space between those of the third and fourth veins lighter, a fuscous spot at the termination of the first longitudinal vein, all the transverse veins and the apex of the penultimate section of the fourth longitudinal vein also infuscated, the costa strongly curved forward just beyond the termination of the first longitudinal vein, second longitudinal vein strongly and third slightly curved forward about the middle of the wing; of the transverse veins between the third and fourth longitudinal veins the inner one is just beyond the termination of the first longitudinal vein and the outer one exactly opposite the posterior transverse vein, the latter strongly curved inward towards the base of the wing.

HAB. Molokai Mts., one male, above 4000 ft., June 1893.

Plate III. figs. 2, side view of head, 3, antenna, and 4, wing.

(2) *Idiomyia obscuripes*, sp. nov.

♀. Long. corp. 6 mm.; al. 6½ mm. Head in all respects like that of *I. perkinsi*. Thorax blackish-brown, before the suture two yellowish-cinereous central stripes, humeri and lateral edges yellow, pleurae for the greater part shining blackish, scutellum and halteres as in *I. perkinsi*, metanotum entirely black. Abdomen blackish-brown, shining, without any trace of yellow markings. Legs obscure yellowish, femora blackish with only the apices yellowish, fore tibiae without tufts of hair. Wings like those of *I. perkinsi*, but the costa nearly straight.

HAB. Maui, two females from Haleakala, 5000 ft., April 1894 and May 1896.

This form is evidently very closely allied to *I. perkinsi*, and may possibly prove to be only the female of that species. On account of the different locality and the difference in the colour of the dorsum of the thorax, the metanotum and the femora, it is perhaps better for the present to regard it as distinct.

(3) *Idiomyia oahuensis*, sp. nov.

♀. Long. corp. 6 mm.; al. 7 mm. Front yellow, posterior half of orbits and the vertical triangle black, face and palpi obscure yellowish, proboscis blackish, antennae obscure reddish-yellow with the third joint light brown, second joint with numerous black hairs, arista with long hairs along the whole length above and the apical two-thirds below, also with a number of shorter hairs between the long ones on the upper side. Thorax reddish-yellow with two broad black stripes on the dorsum which are approximated behind and deeply excavated on their outer side so as to appear almost hook-shaped, humeri shining black, pleurae, scutellum, metanotum and halteres as in *I. perkinsi*. Abdomen shining blackish, obscurely yellow at the base, ovipositor and supra-anal process reddish-yellow, the former slightly upturned and about as long as the last abdominal segment. Legs coloured much as in *I. perkinsi*, the fore femora with bristles as in that species, the fore tibiae without conspicuous hairs. Wings similar to those of *I. perkinsi*, but the costa not arched, the tips of the second, third and fourth longitudinal veins infuscated and a patch of fuscous in the marginal cell near the termination of the first longitudinal vein.

HAB. Oahu, one female, Kawailoa gulch, April 1893.

(4) *Idiomyia picta*, sp. nov.

♀. Long. corp. 5 mm.; al. 6 mm. Front light yellow in front, reddish-yellow behind, in one specimen entirely of the latter colour, orbits as far as the anterior fronto-orbital bristles and vertical triangle blackish with yellowish-cinereous tomentum, face light yellow, proboscis and palpi black, antennae black, the apex of the second joint more or less pale, arista with only four or five hairs on the upper surface and two or three on the apical half of the lower surface, without pubescence. Thorax yellowish-cinereous before the suture and almost entirely blackish-brown behind, the dark portion sending forward two central lines which extend a little in front of the suture, opposite their termination on each side is a small isolated dark spot, while external to the two central lines the dark colour is indented by the light ground-colour, humeri bright yellow, pleurae dark yellowish-cinereous, scutellum blackish on the dorsum with bright yellow margins, metanotum dark cinereous, halteres yellow. Abdomen shining blackish, ovipositor dark reddish-yellow. Legs obscure yellowish, fore femora more or less dark brown and the tips of the others slightly infuscated. Wings hyaline with a brownish tinge in the marginal cell, a small fuscous patch over the termination of the first and junction of the second and third longitudinal veins, the tips of the second, third and fourth veins broadly infuscated, transverse veins and apical portion of the penultimate section of the fourth vein also broadly infuscated; the outer of the transverse veins between the third and fourth longitudinal veins distinctly beyond the posterior transverse vein, the latter directed outward and straight, the outer posterior angle of the discal cell therefore less than a right angle, costa not arched, venation otherwise as in the preceding species.

HAB. Maui, three females, Haleakala, above 5000 ft., October 1896.

HYPENOMYIA, gen. nov.

Front broad and almost parallel-sided, with three fronto-orbital bristles on each side of the posterior half, the lowest one pointing forward, and the other two backward, the middle one much the smallest, two vertical bristles near the upper angle of the eye, one upright and the other pointing outwards, two ocellar bristles pointing forwards and two upright ones behind the vertical triangle; face perpendicular, about as long as the front and distinctly convex longitudinally, at the lower angle on each side is a conspicuous row of strong black bristles which are curved inwards in front of the face; chin with a few bristles; proboscis thick, palpi clavate; eyes large, oval; antennae with the third joint oval, rounded at the end, longer than the first two joints taken together, arista long, with long hairs along the whole length of the upper surface and a few on the apical half beneath. Thorax with two pairs of conspicuous and one or two pairs of smaller dorso-central bristles behind the suture, two humeral, one presutural, two notopleural and four supra-alar bristles; scutellum with two lateral and two apical decussating bristles. Abdomen rather small, conical, in the male with seven distinct segments, the sixth furnished with a row of long fine hairs near the hind margin and with a curious spathulate appendage below, attached by a slender pedicel to the hind margin, seventh segment small, laterally compressed and furnished with long, rather tortuous hairs. Legs rather stout, the tibiae a little thicker at their extremities, the hind pair slightly bent. Wings large, much exceeding the abdomen; last segment of fourth longitudinal vein nearly three times as long as the penultimate, posterior transverse vein oblique, and hence making an acute angle with the fifth longitudinal, anal cell small but distinct.

Type of genus: *Hypenomyia varipennis*, sp. nov.

(1) *Hypenomyia varipennis*, sp. nov.

♂. Long. corp. 6—7 mm.; al. 7 mm. Front yellow, upper half of the orbits darker, the vertical triangle dark brown, face light yellowish-grey, somewhat shining, antennae reddish-yellow, palpi and proboscis yellow. Thorax obscure yellowish in front, behind with four broad, ill-defined brown stripes, pleurae for the greater part brown, scutellum brown above with the sides yellow, metanotum and halteres yellow. Abdomen dark brown. Legs yellow, with the fore tibiae except the bases, the tips of the intermediate and hind tibiae and the greater part of the intermediate metatarsi blackish. Wings tinged with fuscous, leaving the second costal cell, the bases of the marginal and submarginal cells, a quadrate spot on either side of the anterior transverse vein, a subtriangular spot in the discal cell, an oval spot below the base of the fifth vein, one below the tip of the second, one between the tips of the third and fourth veins, and more or less of the posterior margin of the wing hyaline.

Hab. Molokai Mts., two males, 5000 ft., September 1893.

Plate III. figs. 5, side view of head, and 6, wing.

DROSOPHILA Fallen.

This genus is represented by nearly fifty species, of which forty are here dealt with. I cannot satisfactorily refer any of these to already described forms, and therefore have regarded them all as new. Owing to the absence of any striking characters in some of the smaller species I have found it impossible, without reference to types, to decide whether they may or may not belong to certain previously-described North American or European species, with the descriptions of which they agree in many particulars. I hardly think it likely that the native species will be found elsewhere, so that the chances of the names given below being reduced to synonyms will only apply to one or two which may (though this is an unlikely supposition) have been introduced. I have left eight specimens undetermined, owing to their bad condition.

Key to species.

1.	Wings with a dark pattern or with dark spots	2.
	,, not so marked	11.
2.	Tibiae pale yellow, conspicuously banded with dark brown	(*1*) *D. picticornis.*
	,, not banded	3.
3.	Thorax light yellow, with a single broad central stripe and three conspicuous lateral spots blackish	(*2*) *D. variegata.*
	Thorax not so coloured	4.
4.	Wings with costal and apical borders continuously infuscated	5.
	,, without continuous fuscous border	6.
5.	Fourth longitudinal vein distinctly curved near its apex	(*3*) *D. undulata.*
	,, ,, straight	(*4*) *D. perkinsi.*
6.	Thorax yellow, with four conspicuous black stripes; scutellum yellow with broad central dark stripe	(*5*) *D. conspicua.*
	Thorax unstriped or with less than four stripes; if four inconspicuous stripes are present the scutellum is entirely yellow	7.
7.	Third longitudinal vein with a fuscous spot opposite the posterior transverse vein	8.
	Third longitudinal vein without such spot	9.
8.	Infuscation in marginal cell or on middle portion of second longitudinal vein extending to a distance equalling the whole breadth of the wing	(*6*) *D. lanaiensis.*
	Infuscation in marginal cell or on middle portion of second longitudinal vein only about as broad as the length of the posterior transverse vein	(*7*) *D. hawaiiensis.*
9.	A fuscous spot on the middle of the second longitudinal vein	10.
	No ,, ,, ,, ,,	(*10*) *D. paucipuncta.*
10.	Pleurae entirely yellow	(*8*) *D. ochracea.*
	,, marked with dark brown	(*9*) *D. pilimana.*
11.	Apex of wings more or less infuscated	12.
	,, ,, clear	17.
12.	Base of fore femora furnished on the inner side with a brush of short, stiff black hairs	(*11*) *D. anomalipes.*
	Fore femora unarmed	13.

13. Femora black with only the bases and tips yellow .... (*12*) *D. nigra.*

,, yellow .... 14.

14. Antennae entirely, and front for the most part, light yellow .... (*13*) *D. flaviceps.*

,, and front more or less darkened .... 15.

15. Pleurae yellow .... (*14*) *D. infuscata.*

,, dark brown or blackish .... 16.

16. Thorax and scutellum reddish-yellow .... (*15*) *D. sordidapex.*

,, ,, blackish-cinereous, the latter with yellow apex .... (*16*) *D. haleakalae.*

17. Wings with second costal cell infuscated .... (*17*) *D. setiger.*

,, ,, clear .... 18.

18. Wings with one or both the transverse veins clouded with fuscous .... 19.

,, without any fuscous .... 22.

19. The greater portion of the 2nd and the apices of the 3rd and 4th longitudinal veins bordered with pale fuscous .... (*18*) *D. humeralis.*

Longitudinal veins not bordered with fuscous .... 20.

20. Last section of the 4th longitudinal vein twice as long as the penultimate .... (*19*) *D. parva.*

Two last sections of the 4th longitudinal vein equal in length .... 21.

21. Thorax and scutellum reddish or brownish yellow, femora light yellow .... (*20*) *D. sharpi.*

Thorax, scutellum and fore femora blackish .... (*21*) *D. olaae.*

22. Intermediate and hind tibiae with dark rings .... 23.

Tibiae not annulated .... 24.

23. Fore femora swollen .... (*22*) *D. crassifemora.*

,, not swollen .... (*23*) *D. nasalis.*

24. Femora more or less dark .... 25.

,, entirely light yellow .... 27.

25. Arista extremely short-haired; small species .... (*24*) *D. mauiensis.*

,, long-haired; larger species .... 26.

26. Third joint of antenna light yellow .... (*25*) *D. molokaiensis.*

,, ,, dark brown .... (*26*) *D.* sp.?

27. Last two sections of the 4th longitudinal vein equal or subequal .... 28.

Last section of the 4th longitudinal vein at least half as long again as the penultimate .... 31.

28. Thorax shining black .... (*27*) *D. melanosoma.*

,, more or less yellow .... 29.

29. Thorax reddish-yellow with obscure blackish stripes; pleurae partly blackish .... (*28*) *D. longiseta.*

Thorax yellow, unstriped; pleurae entirely yellow .... 30.

30. Front reddish-yellow; second joint of antennae entirely yellow .... (*29*) *D. xanthosoma.*

,, dark ferruginous; ,, ,, dark brown above, yellow below .... (*30*) *D. cognata.*

31. Thorax entirely or in part reddish-yellow; pleurae reddish-yellow .... 32.

,, and pleurae dark brown or blackish .... 37.

32. Antennae entirely light or reddish-yellow .... 33.

,, with the third joint dark .... 35.

33. Scutellum dark brown .... (*31*) *D. inaequalis.*

,, yellow .... 34.

34. Size 2½—3 millimetres .... (*32*) *D. monticola.*

,, less than 2 millimetres .... (*33*) *D. pusilla.*

35. Abdomen light yellow without markings .... (*33*) *D. pusilla*, var.

,, dark reddish-brown .... 36.

36. Face with a distinct broad keel; size larger ....*(34) D. carinata.*
   „ without distinct keel; size smaller ....*(35) D. obscuricornis.*
37. Antennae entirely yellow ....*(36) D. varifrons.*
   „ partly or entirely dark brown ....38.
38. Scutellum blackish with yellow apex ....*(37) D. polita.*
   „ reddish-brown or dark brown, unicolorous ....39.
39. Arista with only 3 hairs above and none below..................................40.
   „ at least 6 hairs above and 4 below ....*(40) D. plumosa.*
40. Front entirely blackish-brown ....*(38) D. obscurifrons.*
   „ yellowish near the antennae, otherwise dark brown.........................*(39) D. exigua.*

(1) *Drosophila picticornis*, sp. nov.

♂ ♀. Long. corp. 3½ mm.; al. 4 mm. Front rather more than one-third of the width of the head, parallel-sided, dark brown, with the orbits, anterior edge, and a narrow median line lighter. Face obscure yellowish-white with the oral margin distinctly projecting and more yellowish, a distinct black spot at the insertion of the vibrissa, below which are a few smaller bristles; proboscis black, palpi ?. Antennae blackish with the apex and lower half of the third joint whitish-yellow, which colour is sharply defined; arista plumose above and on the apical half below. Thorax yellow, with a very broad central stripe, two spots on each side of the latter, a spot on each shoulder, a small spot in front of the base of the wings, two spots and a vertical stripe on the mesopleurae, dark brown; scutellum yellow with a large double spot on the dorsum dark brown; metanotum brown and shining, halteres yellow. Abdomen dark brown, with the first segment in the male and four spots on the anterior border of each of the three following segments yellow. Legs light yellow with the basal two-thirds or so of the femora, two rings on each of the tibiae and the tips of the tarsi dark brown. Wings brown, with numerous single and double hyaline spots.

HAB. Kauai, one male, Waimea Mts., 4000 ft., 1894; one female, Koholuamano, Kauai, April 1895.

Plate III. figs. 7, antenna, and 8, wing.

(2) *Drosophila variegata*, sp. nov.

♀. Long. corp. 4—5 mm.; al. 4—6 mm. Front brown with the orbits and a narrow median line yellow, vertical triangle black; face yellow. Antennae yellow, with the upper edge of the second joint brownish and the whole of the third joint black; proboscis yellow, palpi black. Thorax light yellow, with a broad central stripe, three spots behind the shoulders, and several spots on the pleurae black, the central stripe continued over the scutellum, which is otherwise yellow; metanotum yellow, with brown or black central stripe, halteres light yellow. Abdomen black with large paired subquadrate yellow spots at the anterior angle of each segment, ovipositor projecting, slightly upturned and reddish-yellow. Legs yellow, the bases of the anterior and the greater part of the intermediate and hind femora dark brown or blackish. Wings hyaline, with three irregular dark brown bands running across from the costa to the posterior margin; the first commences immediately before the termination of the 1st longitudinal vein and about its middle sends out a patch which extends beyond the anterior transverse vein and joins the second band, the latter commences about the middle of the wing as a very broad band, then suddenly narrows when it crosses the 3rd vein, expands again on the 4th, runs over the apical half of the discal cell, including the posterior transverse vein but leaving a small hyaline spot near the lower exterior angle of the cell, and terminates on the posterior margin about as broad as it commenced, the third band at the apex of the wing, covering the tips of the 2nd, 3rd, and 4th veins, and along the latter sending a projection inwards which nearly meets the second band.

Hab. Molokai Mts., six females, 4000 ft., May and June 1893.—Lanai, three females, 2000 ft., December 1893, and one female, Halepaakai, 3000 ft., July 1894.

Plate III. figs. 9, ♀ individual, and 10, wing.

(3) *Drosophila undulata*, sp. nov.

♂. Long. corp. 4 mm.; al. 4½ mm. Front dark brown, with the orbits and a narrow median line yellow; face dark reddish-yellow with a distinct keel. Antennae obscure reddish-yellow with the upper edge of the first two joints and the whole of the third dark brown; proboscis yellow, palpi black. Thorax yellow with three black stripes running the whole length, the middle one the broadest; external to these are two stripes, the inner one of which runs from the suture backwards and the outer one from the shoulder to the base of the scutellum, being interrupted at the suture and joining the former behind; metanotum light yellow, scutellum black above, yellow at the sides, halteres yellow. Abdomen black, the fore borders of the segments obscure yellowish. Legs yellow with dark femora, the tips of all the tibiae slightly infuscated and on the two hinder pairs a trace of a dark ring near the base. Wings hyaline, with the costal cells distinctly tinged with yellow; all the veins broadly bordered with fuscous, the margins of the wing likewise darkened all round, except the costal margin as far as opposite the anterior transverse vein, up to which point the 1st and 2nd longitudinal veins are yellowish; 2nd longitudinal vein distinctly curved, and the 4th vein with the two last segments strongly waved.

Hab. Hawaii, one male, Kilauea, August 1896.

Plate III. fig. 11, wing.

(4) *Drosophila perkinsi*, sp. nov.

♂ ♀. Long. corp. $2\frac{1}{2}$—3 mm.; al. 3—$3\frac{1}{2}$ mm. Front yellowish-brown, orbits and vertical triangle lighter; face yellowish-grey with a distinct keel. Antennae yellow with the third joint dark brown; proboscis yellow, palpi black. Thorax yellowish-cinereous becoming reddish-brown behind, with three narrow central brown lines, the middle one reaching the anterior edge, the others abbreviated in front and more or less interrupted at the suture; lateral edge and a broad band on the pleurae dark brown, pleurae otherwise yellowish; metanotum yellowish- or reddish-brown, scutellum dark brown above, yellow at the sides, halteres yellow. Abdomen dark brown, the posterior edges of the segments yellowish-cinereous. Legs yellowish with dark femora, two hind pairs of tibiae with very slight traces of brown rings near the base and tip, and the tarsi, especially the front pair, more or less darkened. Wings hyaline with a broad fuscous border beginning just beyond the termination of the 1st longitudinal vein and running round as far as the anal cell, in the three posterior cells the inner margin of this dark edging is irregularly sinuate, the two transverse veins conspicuously blotched with fuscous and a large fuscous spot in the 1st posterior cell just over the end of the discal cell; 2nd longitudinal vein very slightly curved and the 4th quite straight.

Hab. Hawaii, two males, Kilauea, August 1896.—Oahu, one female, Waianae, coast, January 1897.

Plate III. fig. 12, wing.

(5) *Drosophila conspicua*, sp. nov.

♀. Long. corp. 5 mm.; al. 6 mm. Front yellowish-brown, orbits and vertical triangle lighter, space between the ocelli black, occiput with three black stripes; face light yellowish-grey, without keel, cheeks, lower part of occiput, proboscis and palpi light yellow. Antennae brown, somewhat yellowish beneath. Thorax yellow with four black lines, pleurae yellow, scutellum dark brown with only the lateral angles yellow, metanotum yellow with faint brown central stripe, halteres yellow. Abdomen shining black, with four pairs of yellow subquadrate spots situated at the anterior angles of the first four segments, those of the first segment hardly distinct from the anterior border which is also yellowish. Legs yellow, tip of fore and intermediate tibiae and base and tip of the posterior tibiae slightly infuscated, the last joint of all the tarsi also dark. Wings hyaline, marginal cell infuscated for the greater part of its length, the infuscation extending over the 2nd longitudinal vein, but leaving a spot at the termination of the 1st longitudinal vein and another before the tip of the 2nd vein hyaline, apex of costal cell, a spot on the third vein opposite the posterior transverse vein and a large spot below this on the 4th vein fuscous, both the transverse and the tips of the 2nd to the 5th longitudinal veins broadly infuscated, the infuscation on the 4th extending twice as far inwards as that on the 3rd; posterior transverse vein angularly bent near its middle.

HAB. Hawaii, one female, Olaa, November 1896.

Plate III. fig. 13, wing.

(6) *Drosophila lanaiensis*, sp. nov.

♀. Long. corp. 3½—5 mm.; al. 4—5½ mm. Front reddish-yellow with the orbits and vertical triangle lighter; face shining yellowish, not keeled; proboscis and palpi brown, lighter at the base; antennae obscure yellowish, with the upper edge of the first two and the whole of the third joint darker, sometimes dark brown. Thorax yellow with three brown stripes, the middle one sometimes indistinct, and between this and the lateral stripes on each side a faint trace of a very narrow dark line; pleurae yellow with a dark spot on the mesopleura; scutellum, metanotum, and halteres yellow. Abdomen as in *D. conspicua*, but the yellow spots not so distinct and the ovipositor longer and more slender. Legs yellow, terminal joint of the tarsi dark. Wings hyaline, and marked as in *D. conspicua* but more faintly, the posterior transverse vein quite straight.

HAB. Lanai, five females, 2000 ft., December 1893.

(7) *Drosophila hawaiiensis*, sp. nov.

♂ ♀. Long. corp. 3—4 mm.; al. 3½—5 mm. Front varying from reddish-yellow to dark brown, orbits and vertical triangle lighter and usually cinereous, face yellowish-cinereous, proboscis and palpi reddish-yellow to reddish-brown, antennae dark brown. Thorax yellowish-cinereous, unstriped or with two obscure brown stripes, pleurae reddish-yellow to dark brown, mesopleurae blackish, scutellum and halteres yellow, metanotum reddish-brown to blackish. Abdomen blackish with more or less distinct yellow spots at the anterior angles of the segments, ovipositor distinct. Legs yellow. Wings hyaline, a spot over the 1st longitudinal vein, a transverse band crossing from the middle of the costa over the posterior transverse vein to near the tip of the 5th longitudinal vein, more or less broken up into spots or blotches on the veins, and the tips of the 2nd, 3rd, and 4th veins fuscous; posterior transverse vein slightly convex.

HAB. Hawaii, nine males and two females, Kona, 3500—4000 ft., July and September 1892; one female, Kilauea, August 1896.

A male from Kona, Hawaii, 4000 ft., September 1892, another from Kaumana, Hilo, 2000 ft., January 1896 (in the same island), and a female from Wainae Mts., Oahu, April 1892, differ in having the pleurae lighter, the thorax reddish-yellow rather than cinereous, the fuscous markings on the wings fainter, and the central band only commencing on the 2nd longitudinal vein and being quite broken up into spots. *D. hawaiiensis* appears, however, to be so variable, that at present I shall regard these three specimens as representing a form of that species.

Plate III. fig. 14, wing.

(8) *Drosophila ochracea*, sp. nov.

♀. Long. corp. 3½—4 mm.; al. 4—4½ mm. Front yellow, sometimes a little brownish; face, proboscis, and palpi yellow; antennae obscure yellowish with the third joint darker and sometimes quite brown. Thorax, including the pleurae, scutellum, and metanotum, ochraceous-yellow, without any dark markings, halteres yellow. Abdomen dark brown or blackish, with large quadrate yellow spots at the anterior angles of the segments; sometimes these spots are so large that the abdomen would be better described as yellow with a dorsal line and the hind borders of the segments dark brown. Legs yellow. Wings hyaline with the following fuscous markings: a spot on the 1st longitudinal vein, one on the middle and another at the tip of the second vein, the former distinctly nearer the base of the wing than the posterior cross-vein, a small roundish spot at the tip of the 3rd and an elongated one at the tip of the 4th vein, both transverse veins broadly infuscated, the infuscation on the posterior one being enlarged at each end into a more or less distinct round spot.

Hab. Hawaii, five females, Olaa, July 1895.

(9) *Drosophila pilimana*, sp. nov.

♂ ♀. Long. corp. 3½—4 mm.; al. 4—5 mm. Front yellowish or reddish-brown, orbits and vertical triangle lighter; face cinereous or yellowish-cinereous; proboscis yellowish-brown, palpi yellow; antennae reddish-yellow to brownish, the basal joints somewhat lighter. Thorax yellowish-cinereous, in the male more reddish-yellow with obscure brown markings, pleurae yellow with brown markings, of which two brown streaks on the mesopleurae are the most conspicuous, scutellum yellow with the dorsum more or less dark brown, metanotum brown, halteres yellow. Abdomen as in *D. ochracea.* Legs yellow, in the male the fore tibiae are furnished with long fine hairs on the outer surface. Wings as in *D. ochracea*, but the spots, especially that on the middle of the 2nd longitudinal vein, smaller and less distinct, the anterior transverse vein hardly or not at all infuscated.

HAB. Oahu, one male and three females on trunks of forest trees, Waianae Mts., April 1892.—Kauai, one male, Waimea Mts., 4000 ft., May 1894; one female, Koholuamano, April 1895.

A specimen much paler in all its parts and with the spots on the wings very faint but similarly situated, was obtained in the Mts. of Molokai (4000 ft.) in May 1893, and cannot well be separated from the present species.

(10) *Drosophila paucipuncta*, sp. nov.

♀. Long. corp. 3½—4 mm.; al. 4—4½ mm. Very similar to *D. pilimana*, but differs in the total absence of the fuscous spot on the middle of the 2nd longitudinal vein. The front is darker, the thorax is yellowish-brown becoming much darker behind owing to an obscure blackish patch in front of the scutellum; the metanotum, on the other hand, is lighter; abdomen with yellow spots smaller.

HAB. Hawaii, three females, Olaa, July 1895.

(11) *Drosophila anomalipes*, sp. nov.

♂. Long. corp. 4½ mm.; al. 5½ mm. Front dark reddish-brown with the orbits reddish-yellow, face light cinereous, proboscis reddish-yellow, palpi dark brown; antennae black. Thorax reddish-yellow with an obscure, broadish, central brown stripe, pleurae reddish-yellow, scutellum, metanotum, and halteres reddish-yellow. Abdomen dark reddish-yellow, with a dorsal central line and the hind margins of the segments blackish. Legs yellow, the fore pair of peculiar structure as follow: coxae nearly as long as the femora and furnished at the tip with numerous black curved bristles, femora furnished near the base on the inner side with a brush of rather short, stiff, black bristles, tibiae swollen on the inner side of the tip into a little black knob, metatarsus somewhat swollen. Wings hyaline, with a fuscous spot at the apex which includes the tips of the 2nd, 3rd, and 4th veins, apex of the costal cell and posterior transverse vein also infuscated, the latter quite straight and only about half its length from the border of the wing.

HAB. Kauai, two males of this distinct and peculiar species, 4000 ft., July 1896.

Plate III. figs. 15, fore leg of ♂, and 15a, apex of tibia of same, more highly magnified.

(12) *Drosophila nigra*, sp. nov.

♀. Long. corp. 6 mm.; al. 6 mm. Front blackish with a transverse reddish-yellow band immediately behind the antennae, orbits and vertical triangle shining black; face dark cinereous, proboscis yellow, palpi black; antennae black. Thorax, including pleurae, scutellum, and metanotum, shining black, halteres reddish-yellow. Abdomen shining black, unicolorous. Legs yellow, with the fore coxae dull blackish and all the femora shining black. Wings tinged with light brown, with the apex as far as half way to the end of the discal cell much darker and the posterior transverse vein infuscated.

HAB. Maui, a single imperfect female, Haleakala, 5000 ft., May 1896.

(13) *Drosophila flaviceps*, sp. nov.

♂. Long. corp. 2¼ mm.; al. 2½ mm. Front light yellow, orbits and vertical triangle a little darker, face greyish-yellow, proboscis, palpi, and antennae light yellow. Thorax dark cinereous, somewhat shining, pleurae blackish-brown, shining, scutellum dark brown with a yellowish tinge, metanotum reddish-brown, halteres yellow. Abdomen shining black. Legs light yellow. Wings rather narrow, hyaline, with the apical half slightly infuscated, last two sections of the 4th vein equal, posterior transverse vein about twice its length from the border of the wing.

HAB. Hawaii, one male, Kona, 3500 ft., June 1892.

(14) *Drosophila infuscata*, sp. nov.

♂. Long. corp. 2½ mm.; al. 2¾ mm. Front dark reddish-brown, face yellowish-grey, proboscis and palpi yellow; antennae obscure reddish-yellow, the upper edges of all the joints somewhat darker. Thorax, including the pleurae, scutellum, and metanotum, reddish-yellow, halteres yellow with somewhat infuscated knob. Abdomen shining dark brown, the first and the base of the second segments yellowish. Legs light yellow. Wings hyaline, the apical and upper half infuscated, the dark portion bounded, but not sharply defined, by a line drawn obliquely from the middle of the costa to just below the tip of the 4th vein; last two sections of the 4th vein equal; posterior transverse vein broadly infuscated, quite straight and distant about its own length from the posterior margin of the wing.

HAB. Hawaii, one male, Olaa, December 1896.

(15) *Drosophila sordidapex*, sp. nov.

♂. Long. corp. 3 mm.; al. 3 mm. Front reddish-brown, upper part of orbits and space between the ocelli blackish; face dark brown, proboscis and palpi yellow, antennae obscure reddish-yellow with the third joint dark brown. Thorax, halteres, and abdomen as in *D. infuscata*, but the pleurae dark brown. Legs light yellow.

Wings hyaline with dark apex, the dark portion including only the tips of the 2nd and 3rd veins and that of the 4th slightly, posterior transverse vein not infuscated, quite straight, last section of the 4th vein distinctly longer than the penultimate.

HAB. Hawaii, one male, Olaa, July 1895.

(16) *Drosophila haleakalae*, sp. nov.

♂. Long. corp. 3 mm.; al. 3½ mm. Front, including orbits, light yellow in front, blackish behind, posterior part of orbits and vertical triangle dark and shining; face, proboscis, and palpi yellow; antennae yellow with the upper edge of the two last joints dark brown. Thorax, including pleurae and metanotum, shining blackish-cinereous, shoulders a little reddish, scutellum blackish with yellow apex, halteres yellow. Abdomen shining black. Legs yellow. Wings hyaline, with the apex and the posterior transverse vein slightly infuscated, the latter quite straight and distant a little more than its length from the posterior margin of the wing, last section of the 4th vein longer than the penultimate.

HAB. Maui, one male, Haleakala, 6000 ft., March 1894.

(17) *Drosophila setiger*, sp. nov.

♂. Long. corp. 2½ mm.; al. 2½ mm. Front wholly shining black, face glistening whitish, proboscis obscure yellowish, palpi ?; antennae black. Thorax, including pleurae, scutellum, and metanotum, shining black, halteres with yellow stalk and blackish knob. Abdomen shining black. Legs yellow, fore tibiae with two or three long fine bristles, fore metatarsus furnished at its base with two very long and conspicuous bristles. Wings hyaline with the costal cells dark fuscous and a slight fuscous streak along the costa; posterior transverse vein straight, one and a half times its length from the border, last section of the 4th vein half as long again as the penultimate.

HAB. Molokai, one male, Forest above Pelekunu, 24th August, 1893.

Three females from Molokai Mts., 4000—5000 ft., June to September 1893, are so like the above species that I hesitate to describe them as distinct. They are much larger, however, the body and wings both measuring 3½ mm.; the face is quite black, with the triangular central portion (i.e. excluding the cheeks) highly polished; legs yellow, without conspicuous hairs.

Plate III. fig. 16, fore leg of ♂.

(18) *Drosophila humeralis*, sp. nov.

♂ ♀. Long. corp. 3 mm.; al. 3½ mm. Front dark brown, in the female lighter in front; face obscure brownish, with a distinct keel; proboscis ? yellowish-brown;

antennae dark brown. Thorax blackish-brown with two thin lines on the dorsum reddish-yellow, shoulders light yellow, a stripe of the same colour proceeding from thence to the root of the wings, edges of mesopleurae yellowish, the pleurae otherwise dark brown, scutellum dark brown above, yellow on the sides, metanotum blackish, halteres reddish-yellow. Abdomen blackish with the hind borders of the segments a little lighter. Legs yellow with dark brown femora, fore tarsi in the male fringed with rather long, fine hairs. Wings hyaline, the greater part of the second vein, the tips of the 3rd and 4th and the posterior transverse vein broadly bordered with fuscous.

HAB. Kauai, one male and one female, 4000 ft., July 1896.

(19) *Drosophila parva*, sp. nov.

♂. Long. corp. 1½ mm.; al. 1½ mm. Front black, reddish-yellow immediately behind the antennae, the orbits and vertical triangle dark cinereous; face blackish with a distinct keel; antennae very short, reddish-yellow with the upper edges of the joints somewhat darkened. Thorax dark cinereous, in the best-preserved specimen are traces of three darker lines on the dorsum, scutellum and pleurae dark cinereous, metanotum blackish, halteres pale yellow. Abdomen blackish-brown. Legs with the fore coxae light yellow, the femora more or less brown, the tibiae yellow, with slight traces of darker rings, the tarsi yellow with the terminal joint darkened. Wings hyaline with both the transverse veins conspicuously infuscated, 2nd longitudinal vein distinctly curved forwards at the tip, 3rd and 4th veins parallel, the last section of the latter twice as long as the penultimate.

HAB. Hawaii, Kilauea, two males, August 1896; one male, Kona, 4000 ft., August 1892.

(20) *Drosophila sharpi*, sp. nov.

♂, ♀. Long. corp. 4—5 mm.; al. 4½—6 mm. Front reddish-brown with the orbits and vertical triangle shining dark brown; face yellowish to reddish-brown, proboscis and palpi reddish-yellow; antennae reddish-brown. Thorax reddish-yellow to reddish-brown, scutellum reddish-yellow, sometimes with a blackish spot near the base, pleurae, metanotum, and halteres reddish-yellow. Abdomen yellow with a dorsal median line and the hinder halves of the segments blackish. Legs light- to reddish-yellow. Wings tinged with light brown, posterior transverse vein slightly infuscated, quite straight, two last sections of the 4th vein equal in length.

HAB. Kauai, Koholuamano, two males and three females, April 1895.

(21) *Drosophila olaae*, sp. nov.

♀. Long. corp. 4½ mm.; al. 4½ mm. Front dark brown, hinder part of orbits and vertical triangle blackish; face blackish, with a distinct keel, eye-margins and chin light cinereous; antennae dark brown, second joint for the greater part yellowish. Thorax, including pleurae, scutellum, and metanotum, blackish, halteres reddish-yellow. Abdomen blackish, the segments very narrowly edged with reddish-yellow. Legs with the fore coxae and all the femora blackish-brown, tibiae yellowish, intermediate and hind pairs infuscated at the tip, knees light yellow, tarsi obscure yellowish. Wings slightly tinged with yellowish-brown, posterior transverse vein straight and broadly infuscated, rather less than its length from the border, last two sections of the 4th vein equal.

Hab. Hawaii, Olaa, one female, December 1896.

(22) *Drosophila crassifemur*, sp. nov.

♂. Long. corp. 3½ mm.; al. 4 mm. Front dark brown, an orange-coloured transverse spot behind each antenna; face light yellowish with a very prominent light yellow rounded central keel; antennae dark brown, base of third and apex of second joints reddish-yellow. Thorax orange-yellow, with five rather indistinct brown stripes, humeri light yellow, pleurae reddish-yellow blotched with dark brown, scutellum blackish-brown with the sides yellow, metanotum reddish-yellow, halteres light yellow. Abdomen dark brown, with the segments indistinctly edged with yellowish. Fore legs with the coxae reddish-yellow, the femora shining dark brown, short and very much swollen, with some long black hairs on their upper and outer surfaces, the tibiae equal in length to the femora and yellowish, the tarsi yellowish with the apical joints somewhat darker; intermediate and hind legs with the femora shining dark brown but not swollen, the tibiae yellow with two dark rings, and the tarsi slender and yellowish. Wings slightly greyish tinged but none of the veins clouded.

Hab. Maui, one male of this distinct and peculiar species from Haleakala, 5000 ft., October 1896.

Plate III. fig. 17, fore leg of ♂.

(23) *Drosophila nasalis*, sp. nov.

♂. Long. corp. 4¼ mm.; al. 4 mm. Front dark brown, with the anterior edge, the orbits, vertical triangle, and a central line lighter and more or less yellowish; face brownish-yellow with a very prominent yellow, nose-like keel; proboscis yellow, palpi black; antennae dark brown with the basal joints for the greater part reddish-yellow. Thorax yellow with five brown stripes, pleurae dark brown, the mesopleurae edged below with yellowish, scutellum dark brown with the sides and a basal indistinct spot yellowish, metanotum shining brownish with a slight covering of grey tomentum, halteres light yellow. Abdomen dark brown, with the edges of the segments reddish-yellow. Legs with the fore coxae and all the femora shining blackish-brown, tibiae yellowish, the fore pair with indistinct, the other pairs with two distinct brown rings, tarsi obscure yellowish. Wings uniformly tinged with light brown.

Hab. Molokai Mts., one male, September 17th, 1893, and one male from woods above Pelekunu, August 27th, 1893.

Plate III. fig. 18, head of ♂.

(24) *Drosophila mauiensis*, sp. nov.

♂, ♀. Long. corp. 2 mm.; al. 2 mm. Front dark brown; face brown with a thin sharp keel; proboscis and palpi yellowish; antennae very short, yellowish or reddish-brown, beneath lighter, arista straight with a few extremely short hairs on the upper and on the apical half of the under surfaces. Thorax obscure blackish or dark brown, rather shining, pleurae, scutellum, and metanotum blackish, halteres light yellow. Abdomen blackish, becoming much lighter, almost yellow, towards the tip. Legs with the femora shining blackish, knees and tibiae obscure reddish-yellow, the hind tibiae a little darker towards the tip, tarsi yellowish. Wings hyaline.

Hab. Maui, Iao Valley, one male and three females, September 1896. This small and distinct species may be easily recognised by the extremely short hairs on the arista. What I take to be the male has a long pointed organ (? penis) beneath the abdomen, slightly bent at the tip.

(25) *Drosophila molokaiensis*, sp. nov.

♂. Long. corp. $3\frac{1}{2}$ mm.; al. 4 mm. Front blackish behind, reddish-brown in front, orbits and vertical triangle shining; face grey, without distinct keel; proboscis dark brown, palpi yellowish; antennae, including the third joint, reddish-yellow, the second joint darker above. Thorax with scutellum dark brown, shining; pleurae and metanotum blackish, halteres pale yellow. Abdomen dark brown. Legs with all the femora shining dark brown, the tibiae yellowish, the intermediate pair somewhat darker, all the tarsi yellow with the two apical joints black. Wings slightly tinged with yellowish-brown, posterior transverse vein straight, last two sections of the fourth vein equal.

Hab. Molokai Mts., one male, 4500 ft., September 1893.

(26) *Drosophila* sp.

Two specimens from Koholuamano, Kauai, April 1895, differ from the last species in being smaller, having the antennae dark brown and the tarsi entirely yellow. They are, however, in bad condition, and hence their description is deferred until more material is obtained.

(27) *Drosophila melanosoma*, sp. nov.

♀. Long. corp. 3½ mm. ; al. 3½ mm. Front dark reddish-brown in front, blackish behind ; face brownish cinereous with a slight keel, proboscis reddish-yellow, palpi dark brown ; antennae obscure brownish, the basal joints darker than the third. Thorax, including pleurae, metanotum, and scutellum, shining black, the latter with a reddish apex, halteres pale yellow. Abdomen shining black. Legs, including the fore coxae, light yellow. Wings very slightly tinged with yellowish-brown, third and fourth veins rather wide apart in the middle and distinctly convergent towards the apex, posterior transverse vein slightly oblique.

Hab. Kauai, Mts. Waimea, one female, 4000 ft., 1894.

(28) *Drosophila longiseta*, sp. nov.

♂, ♀. Long. corp. 6 mm. ; al. 6½ mm. Front dark brown ; face reddish-yellow to yellowish-grey, distinctly keeled ; proboscis and palpi reddish-yellow ; antennae large, reddish-brown, arista very long and rather tortuous, plumose above for its whole length and below on its apical half. Thorax brownish-yellow, with three obscure blackish stripes, pleurae reddish-yellow, a large patch on the mesopleura and a small spot beneath the root of the wing blackish, scutellum dark brown, reddish at the sides, metanotum reddish-yellow, halteres yellow. Abdomen blackish with some indistinct yellowish spots at the basal angles of each segment. Legs long and slender, in the female the fore tarsi longer than the tibiae, the fore femora in both sexes armed with long spine-like hairs which are arranged in two rows. Wings yellowish-hyaline.

Hab. Molokai Mts., one male, 4000 ft., June 13th, 1893 ; one female, 4500 ft., September 13th, 1893.

Plate III. fig. 19, antenna.

(29) *Drosophila xanthosoma*, sp. nov.

♂. Long. corp. 3 mm. ; al. 3½ mm. Front, face, palpi, and proboscis yellow ; antennae yellow, the third joint somewhat brownish. Thorax, pleurae, metanotum, scutellum, and halteres reddish-yellow. Abdomen yellow, with the hind margins of the segments more or less brown. Legs yellow, the last joint of the tarsi dark. Wings yellowish-hyaline, third and fourth veins parallel, last two sections of the latter equal, posterior transverse vein slightly convex.

HAB. Hawaii, Olaa, one male, December 1896.

Three specimens with a much darker abdomen and some traces of brown marks on the thorax, from Kona, Hawaii, 2000 ft., June 1892, are scarcely distinct from the species here described.

(30) *Drosophila cognata*, sp. nov.

♀. Long. corp. 4 mm.; al. 4½ mm. Very similar to *D. xanthosoma*, but larger, the front darker; ferruginous rather than yellow, with the orbits and vertical triangle shining, antennae brown, with the second joint reddish-yellow beneath. Thorax darker, brownish-yellow; abdomen dark brown, with the basal angles of the segments yellow; legs with the last joint of the tarsi yellow; wings more decidedly tinged with yellow, third and fourth veins slightly convergent towards the apex, posterior transverse vein straight.

HAB. Molokai Mts., two females, 4000 ft., May 1893.—Hawaii, Olaa, one female, December 1896.

(31) *Drosophila inaequalis*, sp. nov.

♀. Long. corp. 2 mm.; al. 2½ mm. Front bright reddish-yellow with the vertical triangle brown; face and cheeks yellow, proboscis reddish-yellow, palpi yellow with black tips; antennae entirely reddish-yellow, arista with only about two hairs on the upper side and one below. Thorax reddish-yellow with three broadish brown stripes which coalesce behind, pleurae obscure reddish-yellow, scutellum dark brown, metanotum shining blackish, halteres light yellow. Abdomen dark brown, with obscure yellowish spots at the basal angles of the segments. Legs yellow, the tarsi slightly darker towards their tips. Wings yellowish-hyaline, 2nd longitudinal vein distinctly curved forwards near the apex, so that the distance between its termination and that of the 3rd vein is twice that between the terminations of the 3rd and 4th veins, the latter parallel, the last section of the 4th vein half as long again as the penultimate, posterior transverse vein distinctly convex.

HAB. Hawaii, Kona, two females, 4000 ft., August 1892.

(32) *Drosophila monticola*, sp. nov.

♂, ♀. Long. corp. 2½—3 mm.; al. 3—3½ mm. Front brownish-yellow, a transverse band behind the antennae bright yellow; face yellow, proboscis and antennae reddish-yellow, palpi yellow with black apical half. Thorax, including the pleurae, metanotum, and scutellum, yellow or reddish-yellow, a small streak behind each shoulder and two faint stripes on the dorsum brown, halteres yellow. Abdomen yellow, with the hind border of each segment dark brown, but interrupted in the middle. Legs yellow, the apices of the tarsi dark brown or blackish. Wings hyaline, 2nd longitudinal vein very little curved at the apex, 3rd and 4th parallel, last section of the latter half as long again as the penultimate, posterior transverse vein straight.

Hab. Hawaii, Kona, Mt. Hualalai, one male and one female, 8000 ft., August 1892.

(33) *Drosophila pusilla*, sp. nov.

♂, ♀. Long. corp. 1—1½ mm.; al. 1½—1¾ mm. Front yellow, orbits very pale; face pale yellow; proboscis yellow, palpi yellow with somewhat darkened tips, antennae entirely yellow, arista with only three hairs above. Thorax, including pleurae, scutellum, and metanotum, yellow, halteres yellow. Abdomen yellow or yellowish-brown, genitalia black. Legs yellow, tips of tarsi slightly darkened. Wings hyaline, distance between terminations of 2nd and 3rd veins twice that between those of the 3rd and 4th, the latter parallel, last section of the 4th vein about twice as long as the penultimate, posterior transverse vein straight.

Hab. Molokai, three specimens of this minute species, of which I believe two are males, were obtained on the mountains, 3000 ft., in September 1893.—Maui, a specimen from Haleakala, taken at a height of over 5000 ft. in October 1896, only differs in having the third joint of the antenna brown instead of yellow. At present I shall regard it merely as a variety.

(34) *Drosophila carinata*, sp. nov.

♀. Long. corp. 2½ mm.; al. 2¾ mm. Front dark brown with the orbits and vertical triangle cinereous; face yellowish-cinereous with a very conspicuous keel which is narrow between the antennae but becomes much broader towards the oral margin, so that in front view it appears triangular; proboscis yellowish-brown, palpi yellow; antennae reddish-yellow with the second joint above and the third joint entirely brown. Thorax with pleurae obscure brownish-yellow, with traces of three lighter stripes, the pubescence rather coarse, scutellum yellowish-brown with lighter margin, metanotum obscure brownish, halteres reddish-yellow. Abdomen dark brown, a little lighter towards the base, the hind margins of the segments blackish, ovipositor reddish-yellow. Legs yellow. Wings hyaline, rather broad, a dark spot at the termination of the first longitudinal vein, second vein straight, third distinctly curved in the middle so as to approach the second, beyond the middle running parallel with the fourth, last section of the latter fully twice as long as the penultimate, transverse vein quite straight.

HAB. Hawaii, Kona, one female, 4000 ft., August 1892; Olaa, one female, July 1895.

Plate III. fig. 20, head of ♀.

(35) *Drosophila obscuricornis*, sp. nov.

♂ ♀. Long. corp. 1½ mm.; al. 1¾—2 mm. Front black with the orbits and vertical triangle shining and a little lighter; face dark brown or blackish, without distinct keel, proboscis yellowish, palpi dark brown; antennae entirely blackish-brown. Thorax blackish-brown, pleurae reddish-yellow (in one of the specimens dark brown), scutellum and metanotum dark brown, the latter shining, halteres yellowish. Abdomen dull uniform blackish-brown, the terminal segment shining. Legs light pitchy-brown. Wings greyish hyaline, no dark spot at the termination of the first vein, terminations of the second and third veins twice as far apart as those of the third and fourth, third and fourth veins parallel, last section of the fourth vein about twice as long as the penultimate, posterior transverse vein straight.

HAB. Molokai Mts., one male and two females, 5000 ft., August and September 1893.

(36) *Drosophila varifrons*, sp. nov.

♂. Long. corp. 1¾ mm.; al. 2¼ mm. Front light yellow with the orbits and vertical triangle black and polished; face, chin, proboscis and palpi light yellow; antennae entirely reddish-yellow, the arista black with four or five hairs above and about three below. Thorax shining black, with a slight olivaceous tinge, pleurae, scutellum and metanotum shining black, halteres light yellow. Abdomen black with the last segment highly polished. Legs yellow, the terminal joints of the tarsi darker. Wings hyaline, terminations of the second and third veins twice as far apart as those of the third and fourth, third and fourth veins parallel, last section of the latter about half as long again as the penultimate, posterior transverse vein straight.

HAB. Oahu, Kaala Mts., on wet rocks, one male, 2000 ft., March 1893.

(37) *Drosophila polita*, sp. nov.

♀. Long. corp. 3¼ mm.; al. 3½ mm. Front shining black behind, reddish-yellow in front; face yellowish-cinereous, shining; proboscis yellow, palpi yellow with black tips; antennae reddish-yellow with the third joint dark brown. Thorax with dorsum, pleurae and metanotum shining black, scutellum blackish, not quite so highly polished and with yellow apex, halteres reddish fuscous. Abdomen black with the apical segment and lateral margins shining. Legs yellow. Wings hyaline, last section of the fourth vein about half as long again as the penultimate, posterior transverse vein straight.

HAB. Lanai, one female, 2000 ft., December 1893.

From this species I can hardly separate a specimen from Kona, Hawaii, taken at a height of 5000 ft. in July 1892 and another from Olaa in the same island obtained in July 1895. They are both smaller than the type, the former having the abdomen shining throughout and the halteres yellow, the latter also with yellow halteres and the thorax and pleurae somewhat lighter. If distinct their description must be deferred until fuller material is obtained.

(38) *Drosophila obscurifrons*, sp. nov.

♂. Long. corp. 2—2½ mm.; al. 2½ mm. Front black, the orbits, the vertical triangle and a central line a little lighter; face blackish, with a slight keel; proboscis and palpi yellowish; antennae dark brown, arista with three hairs above but none below, apex of second joint and base of third sometimes lighter. Thorax blackish-brown, pleurae olivaceous or dark cinereous, scutellum and metanotum blackish-brown, the latter shining, halteres light yellow. Abdomen blackish, the last segment shining. Legs yellowish, the femora and the tips of the tarsi a little darker. Wings hyaline, last section of the fourth vein about half as long again as the penultimate, posterior transverse veins straight.

HAB. Molokai Mts., three males, 5000 ft., August and September 1893.

(39) *Drosophila exigua*, sp. nov.

♂ ♀. Long. corp. 2 mm.; al. 2 mm. Very similar to *D. obscurifrons*, but differs as follows: the front distinctly reddish-yellow near the antennae, the latter much lighter, with the second joint reddish-yellow or only darkened above, the legs lighter yellow with the femora pale or only slightly darker. Wings with the last section of the fourth vein about twice as long as the penultimate.

HAB. Hawaii, Kilauea, one male, July 1896; Kona, one male and one female, 4000 ft., July 1892.

(40) *Drosophila plumosa*, sp. nov.

♂ ♀. Long. corp. 2—2½ mm.; al. 2½—3 mm. Similar to *D. obscurifrons*, but the front lighter, sometimes obscure reddish-yellow, arista of the antennae with at least six hairs above and three below, thorax lighter, olive-brown, halteres paler, almost creamy, legs lighter, with yellow femora, wings with the last section of the fourth vein about twice as long as the penultimate. From *D. exigua* this species differs in the number of hairs on the arista and in the colour of the halteres.

HAB. Hawaii, Kona, one male, 2000 ft., September 1892; Olaa, one male and one female, July 1895.

Fam. ASTEIIDAE.

ASTEIA Meigen.

The three species described below have only two bristles on the scutellum, thus disagreeing with Schiner's diagnosis of this genus (Fauna Austriaca, II. p. 280). Moreover the arista of the antennae is of a different nature to that of the European species. The neuration is so distinctive, however, that I have little hesitation in placing them here for the present, although ultimately they may serve as types of a new genus.

(1) *Asteia hawaiiensis*, sp. nov.

♂ ♀. Long. corp. 2½—3 mm.; al. 3—3½ mm. Front shining black, face greyish and shining, proboscis and palpi reddish-yellow; antennae blackish-brown, with the under side of the second and third joints whitish-yellow, arista in the form of a zigzag with a short hair at each bend. Thorax shining black; pleurae also shining black, but with a lemon-yellow stripe running from the base of the fore coxae to the root of the wings, scutellum shining black with a light yellow spot at the apex, halteres blackish. Abdomen quite black above, with the apical segments more shining; venter and sides yellow. Legs yellow, with the apices of the fore femora, the whole of the fore tibiae and tarsi blackish-brown and the intermediate and hind femora and tips of the tarsi more or less infuscated. Wings slightly tinged with yellowish-brown.

HAB. Hawaii, Kona, four males and one female, 3500—4000 ft., June—July 1892; Olaa, one female, November 1896.

(2) *Asteia apicalis*, sp. nov.

♂. Long. corp. 2—2½ mm.; al. 2½—3½ mm. Similar to *A. hawaiiensis*, but differs as follows: arista of antennae nearly straight, with the hairs less erect, so that they are difficult to see except under a high power; yellow spot on the scutellum much larger and in some specimens almost extending to the base and thus dividing the black into two portions; halteres lighter and somewhat yellowish; legs yellowish with the apical joints of the tarsi blackish, femora only a little infuscated towards the apex; wings quite clear.

HAB. Hawaii, Kilauea, four males, July 1895.

(3) *Asteia*, sp.

The third species belonging to this genus is represented by a single specimen beaten from trees, at a height of 3000 ft. in the Waianae Mts., Oahu, in April 1892. It differs from the other two species inhabiting these islands in having entirely black antennae, blackish pleurae and reddish-yellow legs. The arista appears to be quite bare.

Fam. AGROMYZIDAE.

AGROMYZA Fallen.

(1) *Agromyza*, sp.

Two specimens belonging to this genus were obtained by Mr Perkins. One was beaten from trees, at a height of 3000 ft., in the Waianae Mts., Oahu, in April 1892, and the other is from Kona, Hawaii, and was obtained at a height of 4000 ft. in September of the same year. Both specimens agree in most respects with *A. pictella* Thoms., described from California, except that the abdomen is entirely black. In the present state of our knowledge of this genus I think it wiser to defer the description of this species, rather than add another to the long list of those already named, which must include a great many synonyms.

OPHTHALMOMYIA Williston.

(1) *Ophthalmomyia lacteipennis* Loew.

Lobioptera lacteipennis Loew., Dipt. Amer. Sept. Centur. VI. no. 97 (Berl. Ent. Zeitschr. IX. 1865, p. 185)—Cuba.

Ophthalmomyia lacteipennis Williston, Tr. Ent. Soc. Lond. 1896, p. 427, pl. XIV. f. 154.

HAB. Hawaii, Kona, five males, 4000 ft., August and September 1892. The last segment of the abdomen is furnished on each side with a row of regular, equidistant bristles, which stand out at right angles to the margin; hence, as the abdomen is pointed they are directed backwards and present a rather remarkable appearance, which does not hitherto appear to have been noticed. I am unable to say whether the abdomen of the female is similarly furnished.

Plate III. fig. 21, body of ♂ individual, seen from above.

Fam. BORBORIDAE.

Borborus Meigen.

(1) *Borborus bilineatus*, sp. nov.

♂ ♀. Long. corp. 2 mm.; al. 2 mm. Front dark olive-brown with a light central stripe, face yellowish-grey, proboscis and antennae black, arista bare. Thorax dark olive-brown, with two somewhat paler stripes, pleurae and scutellum concolorous, halteres light yellow. Abdomen blackish, the second segment in the male about twice as long as the third. Legs blackish-brown, the fore femora short and rather stout, covered with greenish-grey tomentum, intermediate and hind legs, especially the tarsi, rather long and slender, hind metatarsus about as long as but much thicker than the succeeding joint. Wings hyaline, veins yellowish-brown; middle transverse vein near the base of the discal cell, last two sections of the fourth vein equal, fifth vein just projecting beyond the posterior transverse vein.

Hab. Hawaii, Kona, one male and one female, 4000 ft., July 1892.

Limosina Macquart.

(1) *Limosina venalicia* Osten-Sacken.

Borborus venalicius O.-Sack., Cat. Dipt. N. Amer. 2nd ed. p. 263 (1878).
Borborus venalicus [sic] Williston, Tr. Ent. Soc. Lond. 1896, p. 434, pl. XIV. f. 163.

♂ ♀. Long. corp. 2½ mm.; al. 2½ mm. Front reddish-yellow to reddish-brown, a central line, some small spots marking the insertion of the fronto-orbital bristles and two spots on the occiput immediately behind the ocelli silvery-grey; face yellowish-brown, shining; proboscis and palpi yellowish; antennae reddish-brown, third joint darker at the tip, which is obtusely pointed and dusted with whitish tomentum, arista distinctly pubescent. Thorax dark brown, a median line and the insertions of the macrochaetae whitish-cinereous, the markings at the insertion of the dorso-central bristles sometimes continued forward to the anterior margin of the thorax as a more or less interrupted whitish line, humeri also spotted with whitish-cinereous; pleurae more reddish, variegated with whitish-cinereous; metanotum reddish-brown, more yellowish at the sides; scutellum reddish or dark brown, with two triangular spots at the base, a diamond-shaped spot between them and two small round spots marking the insertions of the apical bristles, light cinereous; halteres yellowish. Abdomen blackish-brown, all the segments edged behind with whitish-cinereous. Legs yellow, all the tibiae with two brown rings, last two joints of all the tarsi and the bases of the hind metatarsus and succeeding joint fuscous. Wings yellowish-hyaline, veins yellow, but darkened at the base of the costa, the tips of the first, second and third longitudinal veins, the origins of the second and third veins, and on the first vein opposite the origin of the third; second and third sections of the costa sub-equal, last section of the second vein twice as long as the first and second sections of the third which are equal; last section of the third vein distinctly curved upwards.

Hab. Hawaii.—Lanai.—Maui.—Oahu.

This remarkably coloured species is said to be a native of Africa, but is also recorded from Cuba, St Vincent, and Brazil. It is represented in the collection before me by thirty-seven specimens, including both sexes, of which twenty-nine are from Mauna Loa, Hawaii, obtained at a height of 3500 ft. in June 1892. The remaining eight examples are from Kona, Hawaii (4000 ft., September 1892); Kilauea, Hawaii, December 1896; Iao Valley, West Maui Mts., March 1894; Lanai, 2000 ft., February 1894; and Kawailoa Gulch, Oahu, April 1893. Osten-Sacken and Williston both place this species in the genus *Borborus*. On account of the extreme tenuity of the last section of the third vein (rendering it almost invisible), the length of the arista and nature of the face, it seems to me to be a true *Limosina*.

(2) *Limosina aequalis*, sp. nov.

♂ ♀. Long. corp. 2¼ mm.; al. 2 mm. Front deep black, with the orbits and a central stripe somewhat lighter, face black, rather shining, with a double groove down the centre, proboscis, palpi and antennae entirely black, the latter porrect, with the third joint large, hairy and hemispherical, arista pubescent. Thorax and scutellum shining black, pleurae dull black. Abdomen black. Legs black, bases of the femora and the tarsi a little lighter. Wings greyish, the three sections of the costa equal in length, the first section with a few longer bristles, first two sections of the third vein equal, together shorter than the last section of the second vein, last section of the third vein straight, terminating at the tip of the wing.

Hab. Oahu, Kawailoa Gulch, one male and one female, April 1893.

Closely allied to *L. pumila*, Williston, from the island of St Vincent, but differs in the entirely black front and face.

Note:—Half-a-dozen specimens of *Acalyptrate Muscidae*, gummed on card and in bad condition, have been left undetermined.

Fam. PHORIDAE.

Phora Latreille.

(1) *Phora*, sp.

A single specimen belonging to this genus, but without head, is in the present collection, from Kona, Hawaii, taken at a height of 2000 ft. in September 1892.

Fam. HIPPOBOSCIDAE.

This species is represented in the collection by three distinct species, but owing to the want of material for comparison I have been unable to come to any conclusion regarding their identity. The largest (? an *Ornithomyia*) measures from 6 to 8 mm. in length, and seven examples were taken from specimens of the Short-eared Owl in Kona, Hawaii, in June 1892. An eighth specimen was obtained at Lanai, at a height of 2000 ft., in February 1894.

The second species is somewhat smaller, with the thorax tawny, and was captured in the mountains of Molokai at a height of over 3000 ft., on the 12th May 1893. Unfortunately the specimen is headless.

The third species only measures from 2 to 2½ mm. in length. One was obtained in Kona, Hawaii (3000 ft.) in June 1892 on a Short-eared Owl, two in the same region (1500 ft.) in September 1892 on a specimen of *Vestiaria coccinea*, and a fourth was found on *Himatione stejnegeri*, but the locality is not indicated.

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By P. H. GRIMSHAW and P. SPEISER

HEMIPTERA

By G. W. KIRKALDY

DIPTERA.

H. S. Barber,
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SUPPLEMENT.

SINCE the preceding account of the Diptera was published, a small additional series of specimens has been obtained and handed to me containing about sixteen additional species. The most remarkable of these is the wingless Dolichopodid I have described on page 81 as the type of a new genus. Some of the others are evidently introductions, and with my present limited acquaintance with exotic Diptera I do not feel justified in regarding them as new, especially in such groups as *Tachinidae* or *Sarcophagidae*. It is rapidly becoming impossible for a single worker to obtain an adequate knowledge of all families, and in the investigation of the Dipterous fauna of any country in the future, the aid of specialists who devote themselves to single families will have to be called in. In the present instance this plan has been partially resorted to, and we are much indebted to Dr Speiser for his careful working out of the *Hippoboscidae*, to which I referred briefly on p. 77. His report is given below (pp. 86—92). [P. H. G.]

Fam. STRATIOMYIDAE (p. 11).

NEOEXAIRETA Osten-Sacken.

(1) *Neoexaireta spinigera*, Wied.

Xylophagus spiniger Wied., Auss. zweifl. Ins. II. 618 (1830).

Beris servillei Macq., Dipt. Exot. I. 1, 172, taf. XXI. fig. 1 (1838) and Suppl. I. 47, 1 (1844).

Diphysa spinigera Walk., List. Dipt. Ins., Suppl. I. 7 (1854).

HAB. Oahu, Honolulu, two specimens, June and July, 1900. I have compared these examples with others so named in the British Museum, and find them to agree in every respect.

(2) ? Genus and species.

A specimen taken on the Mts. of Honolulu in 1900, appears to be very near *Acanthina* Wied., but as the antennae are broken off it is difficult to ascertain its correct position.

Fam. DOLICHOPODIDAE (p. 11).

Gnamptopsilopus Aldrich (p. 11).

(1) *Gnamptopsilopus patellifer*, Thomson (p. 11).

An additional female from S. Kona was obtained in February 1899.

Dolichopus Latreille.

This genus, not hitherto recorded from the Sandwich Islands, is represented in the present collection by five specimens obtained in the island of Oahu in 1901. Three males and one female are from the Waialua Mts. (May), and the other specimen, a male, from N.W. Koolau (July). I have not been able to identify the species, but it comes very near the European *griseipennis* Stann. The antennae, however, are shorter, the fore coxae quite yellow, without silvery sheen, the hind tibiae dark in at least their apical half, and the fourth longitudinal vein not so abruptly broken.

Campsicnemus Walker (p. 13).

(5) *Campsicnemus patellifer*, sp. nov.

♂. Long. corp. $1\frac{1}{2}$ mm.; al. $1\frac{3}{4}$ mm. Front dark brown with a greenish metallic reflection. Antennae black, third joint obtuse, hairy, arista about as long as the thorax, hairy, with a spatulate enlargement at the tip. Thorax and scutellum dark brown, shining, with a greenish metallic tinge, halteres bright yellow. Abdomen dull blackish-brown. Legs yellow, with the tips of the hind femora and of all the tarsi darker. Fore femora and tibiae entirely without bristles; intermediate femora very much thickened in their basal two-thirds, abruptly narrowed towards the tip, on the under surface of the thickened portion a double row of very conspicuous black bristles; hind femora slender, with two moderate-sized bristles on the under surface near the tip. Intermediate tibiae very long, curved, narrowed in their middle portion, furnished near the tip of their inner surface with a tuft of long fine hairs; hind tibiae long and slender, the whole of their inner surface furnished with fine, short hairs. Fore and hind tarsi normal, intermediate tarsi with the 1st joint extremely short and furnished with two long spines, 2nd joint two-thirds of the length of the tibia, slender and curved, concave (outer) surface furnished with long and regularly disposed hairs. Wings dusky-hyaline, 3rd and 4th veins parallel, posterior transverse vein more than twice its length from the posterior margin of the wing.

Hab. Oahu, one male, Pali, December 1900.

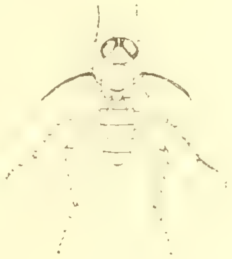
EMPEROPTERA[1], gen. nov.

Near *Chrysotus*, but wings much reduced, being represented only by a somewhat thickened, curved filiform structure, with an apparent joint (or perhaps weakness) near the base, hairy along the anterior margin for its whole length, and furnished at its tip with a conspicuous bristle. Front broad, triangular, face narrow, especially just below the antennae, where the eyes nearly meet; antennae short, the third joint hairy, arista dorsal, very long, and distinctly pubescent. Thorax smooth and polished, scutellum with two very long and strong bristles, halteres apparently absent (I cannot find any trace of them in the few specimens before me). Abdomen comparatively large and elongated, hypopygium small and indistinct. Legs long with stout femora, unarmed except the intermediate and hind tibiae.

Type of genus: *E. mirabilis*, sp. nov.

(1) *Emperoptera mirabilis*, sp. nov.

Long. corp. 1½—2 mm. Front black and polished, with a very slight dark blue (steely) tinge, face black with a silvery spot just above the oral opening; antennae black, third joint very short, hairy and pointed, arista very long, whitish and distinctly pubescent. Thorax bluish-black, highly polished and with few bristles, sometimes with a greenish tinge, appendages (? wings) dark brown, much shorter than the legs, scutellum rather dull and blackish-brown, sometimes a little yellowish at the tip, with two strong setae which reach to the apex of the second abdominal segment. Abdomen black and polished, but duller than the thorax, slightly pubescent, base of first segment sometimes yellowish. Legs yellowish-testaceous, tips of femora and tarsi a little darker. Hind femora with one or two small spines near the apex, intermediate and hind tibiae each with four bristles on their outer surface, legs otherwise unarmed. Under a high power the hind tibiae show at the extreme tip, on the outer side, a small transverse comb of about ten minute bristles.



HAB. Oahu, 5 specimens on *Freycinetia*, Koolau range, December 1900; 4 specimens "back of Malukia" December 1900.

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[1] ἔμπηρος, crippled, maimed.

Fam. SYRPHIDAE (p. 19).

ERISTALIS Latreille (p. 19).

(2) *Eristalis punctulatus* Macquart.

Eristalis punctulatus Macq., Dipt. Exot. 2^e^ Suppl. p. 59 (1847).

A male of what I take to be this species, originally described from Australia, was taken at Honolulu in June 1900. It is evidently an importation.

EUMERUS Meigen.

(1) *Eumerus marginatus*, sp. nov.

♂. Long. corp. 7½ mm.; al. 5½ mm. Front black with a slightly metallic tinge, clothed behind with yellowish hairs, in the middle with black hairs, and in front with yellowish-grey tomentum; face black, covered with long whitish pubescence; eyes bare, meeting for a short distance in front, the facets in this portion being much larger than in the rest of the eyes. Antennae blackish-brown, sometimes the 3rd joint, which is comparatively large, a little lighter, arista long and stout. Thorax bronzy or iridescent-black, the suture and two dorsal longitudinal lines more or less tomentose; scutellum blackish or bronzy, with a very conspicuous yellow margin which is formed by a transverse and somewhat crenulated depression running round the disc; thorax and scutellum both coarsely punctured and covered with almost golden-yellow pubescence which is much longer around the margin of the latter. Abdomen black, shining and punctured, with a purplish or bronzy metallic tinge; 1st, 2nd, and 3rd segments each with a pair of whitish tomentose lunules, those of the 1st segment small and indistinct, 4th segment more bronzy and covered with thick whitish pubescence, which is also present at the basal angles of the 1st segment. Legs black with a greenish metallic tinge, the knees base of the tibiae, the anterior and intermediate tarsi yellow, posterior legs with the femora much swollen, the tibiae much enlarged in their apical half, and the tarsi also enlarged, all the legs covered with whitish pubescence. Wings with a slight brownish tinge, subapical transverse vein much angulated, so that the cell it closes has a pointed projection, while the vein itself has an appendage at the angle.

HAB. Oahu, 4 males taken at Honolulu, in June 1900.

Note:—Although I cannot find any published description which fits this species it is with some hesitation that I here describe it as new. It may be an importation from Australia—the genus does not occur in America, so far as I am aware.

Fam. TACHINIDAE (p. 20).

Chaetogaedia Brauer and Bergenstamm (p. 20).

(1) *Chaetogaedia monticola* Bigot (p. 20).

A specimen taken in the Honolulu Mts., 1900.

Two other specimens belonging to the *Tachinidae*, and each representing a distinct species, were taken in Oahu (Waianae Coast) in January 1901, but they are in such poor condition that I cannot identify them. One, which, from the structure of the head, appears to be near *Prospherysa* v. d. Wulp, but all the legs are missing save one of the anterior pair.

Fam. SARCOPHAGIDAE (p. 21).

Dyscritomyia Grimshaw (p. 21).

(7) *Dyscritomyia*, sp.

A single male specimen from the Jao Valley, Maui, taken in September 1901, resembles very closely the females from Molokai referred to on p. 22 under *D. limbipennis*. The fore metatarsi in the male are quite simple and unarmed, so that these three examples very probably represent a distinct species inhabiting the central islands of the main group. Until more material is obtained I prefer to leave it undescribed.

Sarcophaga Meigen (p. 26).

Two species belonging to this genus are represented in the supplementary collection formed by Mr Perkins, but I am unable to identify them. One, with red anus, is represented by a male from N.W. Koolau (Oahu), July 1901; the other, with black anus, by three specimens, viz. a male and female from the Honolulu Mts., 1900, and a male from the N. Koolau range, August 1901.

Fam. MUSCIDAE (p. 27).

Rhinia Desvoidy.

(1) *Rhinia testacea* Desvoidy.

Rhinia testacea Desvoidy, Essai sur les Myodaires, p. 423, 1 (1830).

Two males of this species, a native of China, Hong-Kong and the Nicobars, were taken by Mr Perkins at Honolulu, in June 1900.

LUCILIA Desvoidy (p. 28).

(2) *Lucilia* sp.

One ♂, not in sufficiently good condition for identification, was obtained on the Mts. of Honolulu, in 1900.

Fam. ANTHOMYIDAE (p. 29).

HOMALOMYIA Bouché (p. 30).

(2) *Homalomyia femorata* Loew.

Homalomyia femorata Loew, Berl. Ent. Zeitschr. XVI. p. 93 n. 68 (1872).

A male of this species, originally described from Cuba, was obtained on the Honolulu Mts. in 1900.

ACRITOCHAETA Grimshaw (p. 41).

Herr P. Stein has kindly pointed out to me that this genus is probably identical with *Atherigona* Rondani.

Fam. SCIOMYZIDAE (p. 43).

SCIOMYZA Fallen (p. 43).

(1) *Sciomyza hawaiiensis*, sp. nov.

Long. corp. 4 mm.; al. 3¼ mm. Front yellowish-cinereous with a double dark brown central stripe; face yellow with a darker patch beneath the antennae, oral margin and a spot beneath the lower angle of the eye also brownish, vibrissal angle with a few tiny bristles, chin yellow with several strong bristles; antennae entirely brownish-yellow, arista distinctly pubescent. Thorax and scutellum unicolorous cinereous, the latter with a distinct yellow margin, halteres pale yellow. Abdomen with 1st segment entirely yellowish, 2nd yellowish with a dark brown spot or patch at each side, remaining segments shining dark brown or blackish with the hind margins yellow. Legs entirely yellow. Wings very slightly yellowish tinged, unicolorous, veins yellow, last section of the 4th longitudinal vein half as long again as the penultimate, both transverse veins with a trace of clouding.

HAB. Oahu, one specimen, N.W. Koolau, July 1901. To this species also belongs the specimen from Waialua, Oahu, mentioned on p. 43.

Fam. ORTALIDAE (p. 44).

ACROSTICTA Loew (p. 44).

(1) *Acrosticta pallipes* Grimshaw (p. 44).

Two females taken in the Honolulu Mts. in 1900.

EUXESTA Loew (p. 44).

(1) *Euxesta annonae,* Fabricius.

HAB. Oahu, one female taken in the Honolulu Mts., 1900.

CHRYSOMYZA Fallen.

(1) *Chrysomyza,* sp.

This genus is represented by a single specimen taken in the Honolulu Mts. in 1900. It is a beautiful species with shining metallic green thorax, coppery scutellum and abdomen metallic bluish purple with green margin. The wings have the first posterior cell closed and stalked. Possibly an introduction from the West Indies or South America.

Fam. SAPROMYZIDAE.

(1) *Sapromyza,* sp.

A single specimen belonging to this genus was obtained in the Honolulu Mts. in 1900, but I have not been able to identify it. At the same time I do not feel justified in describing it as new.

Fam. EPHYDRIDAE (p. 49).

BRACHYDEUTERA Loew (p. 49).

(1) *Brachydeutera argentata,* Walker (p. 49).

A single specimen taken in the Jao Valley, Maui, in September 1901.

SCATELLA Desvoidy (p. 49).

(1) *Scatella hawaiiensis* Grimshaw (p. 49).

Eleven specimens obtained at Pali, Oahu, in December 1900.

Fam. DROSOPHILIDAE (p. 50).

Drosophila Fallen (p. 55).

(7) *Drosophila hawaiiensis* Grimshaw (p. 60).

One specimen (? a male), N.W. Koolau (Oahu), July 1901.

(9) *Drosophila pilimana* Grimshaw (p. 61).

One female, Waialua Mts., Oahu, May 1901.

(41) *Drosophila crucigera*, sp. nov.

♀. Long. corp. 3½—4 mm.; al. 4 mm. Similar to *D. variegata* (p. 57) but smaller, second joint of antennae entirely yellow, and pattern of wings more broken up although of the same general type. In the centre of the wing is a fuscous patch roughly resembling a Greek cross, the foot of which extends over the posterior transverse vein; in the centre of the second posterior cell, i.e. exterior to the foot of the cross, is a small rounded detached spot and a similar one in the middle of the third posterior cell, third fuscous band (at the apex of the wing) with a conspicuous hyaline spot between the tips of the 2nd and 3rd veins.

Hab. Oahu, one female, Honolulu Mts., August 1900, one female, Waialua Mts., May 1901.

(42) *Drosophila*, sp.

A single male specimen of a species apparently allied to *D. paucipuncta* was obtained by Mr Perkins in Oahu (N.W. Koolau) in July 1901. The wings bear only the slightest trace of fuscous markings, the thorax is yellowish marked with four very obscure brown stripes, while the fore tibiae and tarsi are bearded with long hairs.

DIPTERA PUPIPARA.

By Dr. P. Speiser, Bischofsburg, Ostpreussen.

In seiner Bearbeitung der Dipteren der "Fauna Hawaiiensis" erwähnt P. H. Grimshaw auf p. 77 auch drei Species von Hippobosciden, ohne diesen jedoch Namen beizulegen. Herr P. H. Grimshaw hat nun die grosse Liebenswürdigkeit gehabt,

mir die dort erwähnten Tiere zur Bestimmung anzuvertrauen, wofür ihm hier nochmals bestens Dank gesagt sei. Ihre Untersuchung hat das Folgende ergeben:

1. Die erste Species, in 7 Exemplaren 1892 von Perkins auf der Insel Kona als Parasit einer kurzohrigen Eulenart, und in 1 Exemplar zwei Jahre später auf der Insel Lanai gefangen, gehört zur Gattung *Olfersia* Leach. Ich kannte die Art schon längere Zeit nach einem Exemplar aus dem Städtischen Museum für Natur-, Völker- und Handelskunde zu Bremen, welches der Direktor dieses Museums, Herr Dr. Schauinsland, seinerzeit auf der Insel Molokai, ebenfalls zur Gruppe der Hawaiischen Inseln gehörig, als Parasiten des Fregattvogels, *Atagen aquila* L. gefangen hatte. Die Art ist aber bisher noch nicht beschrieben, und ich gebe daher hier ihre Beschreibung. Ich bemerke, dass es zur Wiedererkennung der Hippobosciden-Arten notwendig ist, die Beschreibungen sehr ausführlich zu gestalten, denn gewisse Charaktere, die bei andern Dipterengruppen constante Merkmale zu geben pflegen, sind hier starker Variation unterworfen. Damit muss es entschuldigt werden, wenn die Länge der Beschreibung an die Löw'schen Asilidenbeschreibungen in der Linnaea entomologica erinnert. Die zu beschreibende Art scheint der *O. pallidilabris* Rond. aus Mexico nahe zu stehen, doch glaube ich, dass sie bestimmt von ihr verschieden ist. Ich nenne sie

(1) *Olfersia acarta* [ἄκαρτος ungeschoren], sp. nov.

Länge 6·25 mm., Mundrand—Hinterrand des Scutellum 4 mm. Grundfarbe ein dunkles, glänzendes Schwarzbraun, die Schulterecken und der Kopf, namentlich an den Mundteilen, aber auch bisweilen auf der Innenseite der Augenränder heller, bis ledergelb, ebenso ein Paar kleiner Fleckchen an den Seiten des Scutellum. Auch die Beine sind im Ganzen ein klein wenig heller, und die Schenkel auf ihrer Basalhälfte fast auch ledergelb.

Kopf etwas mehr als halb so breit wie der Thorax an seiner breitesten Stelle, Scheitel gleichmässig gerundet ohne Einbuchtungen oder Buckel. Stirn etwas breiter als ein Drittel des Kopfes, in den oberen 2 Dritteln nach vorn leicht verschmälert, dann wieder verbreitert, sodass sie an den Antennengruben wieder so breit ist wie am Scheitel; sie ist in der Mitte matt, die Augenränder und das vorn ganzrandige Scheiteldreieck glänzend; bei einem Stück ist auch der Vorderrand des Scheiteldreiecks in der Mitte seicht eingedrückt. Die Innenseite der Augenränder ist mit vielen feinen, goldglänzenden Härchen besetzt, ähnlich wie bei *Lynchia exornata* m.[1] und einigen andern Arten, jedoch sind diese Härchen kürzer und nicht so zierlich gescheitelt wie bei der genannten Species. In dieser Behaarung sehe ich den einen wichtigen Unterschied gegenüber *O. pallidilabris* Rond., in deren Beschreibung[2] besonders betont wird:

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[1] Annali del Mus. Civ. di Genova, 1900, p. 562.

[2] ibid. XII. 1878, p. 161.

"orbitis angustis et areola verticis pumicatis," aber von einer Behaarung nichts gesagt ist; von diesem Merkmal habe ich auch den Namen der Art gewählt. Der Clypeus oris, d. h. das Stück vom Mundrand bis zur Stirnspalte, ist hier deutlicher als bei anderen Arten in zwei hintereinanderliegende Abschnitte gesondert. Er ist schmutzig ledergelb (bei Rondani's Art "sordide albicans") vorn in der Mitte leicht winklig ausgeschnitten, aber ohne hervortretende Ecken oder Spitzen. Wenn man nicht die seitlich etwas vertiefte Querfalte zwischen dem vorderen und hinteren Abschnitt so betrachten will, muss der Clypeus als nicht mit Gruben versehen beschrieben werden. Die Antennenfortsätze sind ziemlich lang und breit, tief schwarz glänzend mit schwarzer Beborstung. Die Maxillarpalpen, welche die Rüsselscheide bilden, pechbraun, nur etwas länger hervorragend als der Clypeus lang ist, verhältnismässig breit und stumpf.

Thorax etwas breiter als lang, dunkel schwarzbraun glänzend mit ganz fein gelb angelegter Längslinie, schmutzig ledergelben Schulterecken und je einem ebenso gefärbten kleinen Fleck an den beiden seitlichen Ecken des Scutellum. Die seitlichen hinteren Ecken des Praescutum mesonoti an der Dorsopleural- und der Quernaht, sind ganz leicht fleckartig mit einem schmutzig grauen Reif bedeckt, ebenso die Pleuren vor den Flügeln mit Ausnahme eines von der Flügelwurzel nach vorn und unten ziehenden erhabenen Streifens. Die sehr feine Längsnaht des Thorax geht auch auf das Scutellum über, ist hier stark verbreitert und verschmälert sich erst nach dem Hinterrande des Scutellum zu wieder. Die Quernaht zwischen Praescutum und Scutum ist in der Mitte nicht unterbrochen, vielmehr in der Ausdehnung von nur $\frac{1}{2}$—$\frac{3}{4}$ mm. nur ganz fein, linienförmig die Längsnaht kreuzend, während sie an den Seiten tief furchenförmig ist. Das Scutellum ist breit halbmondförmig, mit einer feinen Furche vor dem Hinterrande und der schon erwähnten, breit beginnenden, nach hinten keilförmig verschmälerten Längsvertiefung. Die sehr characteristischen gelben Flecke auf den Ecken wurden schon erwähnt. Neben ihnen, medialwärts, steht jederseits eine starke Borste, der Hinterrand ist mit feinen goldglänzenden Härchen dicht besetzt. Die Pleuren und Schulterecken tragen mässig zahlreiche schwarze Borsten, wie gewöhnlich. An der feinen Naht, die die Schulterecken gegen das Praescutum abgrenzt, stehen etwas längere goldglänzende Härchen, ähnlich wie bei *Lynchia exornata* m., aber viel kürzer; auch sonst einzelne solche Härchen auf der Thoraxfläche (bei *O. pallidilabris* Rond. nicht erwähnt). Endlich sind zwei rundliche Fleckchen vor dem Scutellum dicht mit ganz kurzen goldgelben Härchen besetzt.

Die Beine sind ganz ohne Besonderheiten, die Vorderschenkel etwas dicker, die Hinterbeine etwas länger als gewöhnlich, nirgends characteristische Beborstung. Die Krallen, wie stets bei der Gattung *Olfersia*, mit einem accessorischen Zahn.

Die Flügel sind leicht haselbraun gefärbt, nicht milchig getrübt. Interessant ist die Costalis. Diese ist, wie Rondani das bei seiner *O. papuana*[1] und ich selber vor kurzem bei einer als *O. parallelifrons* m. benannten[1] Form beschrieben haben, bald hinter der Einmündung der Subcostalis bis zu ihrem Ende deutlich verdickt, dabei übrigens gleichmässig schwarzbraun und nicht durchscheinend. Die Subcostalis mündet bald wurzelwärts von der kleinen Querader, bald genau über dieser, bei einem Stücke auch auf dem einen Flügel spitzenwärts von ihr. Die Radialis mündet viel dichter an der Subcostalis als an der Cubitalis, wie das auch Rondani bei seiner *O. pallidilabris* beschrieben hat, ohne doch etwas von einer Verdickung der Costalis zu sagen. Der letzte Abschnitt der Costalis ist somit doppelt so lang als der vorletzte. Die Discoidalis ist an ihrer Ursprungsstelle aus dem gemeinsamen Stamm des hintern Adersystems leicht knopfförmig erhaben dadurch, dass der Flügelteil zwischen dem Stamm des vordern Adersystems und dem Hinterrand des Flügels samt dem Stamme des hintern Systems geradezu grubenartig vertieft ist. Die hintere Basalzelle ist nicht ganz halb so lang als die vordere, durch eine deutliche Querader geschlossen und an ihrer breitesten Stelle noch nicht so breit wie die Entfernung des Knies der Discoidalis vom Flügelvorderrand.

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[1] Ann. Mus. Civ. Genova, XII. 1878, p. 162.

Das Abdomen ist bei einer Anzahl der Exemplare am Ende weiss, bei dem bremer Stück mehr gelblich bereift, was an die Bemerkung: "abdomen...apici plus minusve luride albicans" bei *O. pallidilabris* Rud. erinnert.

(2) *Ornithomyia varipes* Walk.

Die zweite Species, von der nur ein einziges verstümmeltes Stück vorliegt, von Perkins am 12. v. 1893 in den Bergen der Insel Molokai bei 3000 Fuss Höhe gefangen, gehört sicher zur alten Gattung *Ornithomyia* Latr. Dem Stücke fehlt der grösste vordere Teil des Kopfes, von dem nur die Scheitelpartie mit den Ocellen erhalten ist, und somit können wir nicht an der Hand der zur Unterscheidung wichtigen Antennenfortsätze entscheiden, zu welchem der drei Genera, in die ich kürzlich[2] die genannte Gattung zerlegte, das Exemplar gehört. Dem ganzen Habitus nach aber kann man mit Sicherheit sagen, dass es zur Gattung *Ornithomyia* Latr. sens. str. gehören muss, und ich habe, trotzdem ich die häufig wichtigen Merkmale, die die Stirn und die Teile des Mundrandes geben, nicht mit verwerten konnte, versucht, dieses Exemplar mit einer der bisher beschriebenen Arten zu identificieren. Ich habe dabei alle diejenigen Arten des Genus *Ornithomyia* s. str. nebst solchen, aus deren Beschreibung ihre Zugehörigkeit zu einem der drei neu characterisierten Genera nicht zu ersehen war, verglichen, welche im Insel- und Küstengebiet des pacifischen Ozeans in weitester Ausdehnung vorkommen. Ich will diese hier nennen, indem ich die wenigen Arten, die ich aus eigener Anschauung kenne, mit einem * versehe: die anderen kann ich nur nach den häufig recht unvollkommenen Beschreibungen berücksichtigen:

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[1] Termeszetrajzi Füzetek, xxv. 1902, p. 336.

[2] ibid. xxv. 1902, p. 327 ff.

Neu-Guinea: *O. plana* Walk. 1861.
,, *O. simplex* Walk. 1861.
Australien: **O. perfuga* Speiser, 1902.
Tasmania: **O. nigricornis* Erichs. 1843.
Neu-Seeland: **O. variegata* Big. 1885.
,, *O. opposita* Walk. 1849.
Galapagos-Inseln: *O. intertropica* Walk. 1849.
Chile: *O. chiliensis* Guér.-Ménév. 1844.
Columbia: **O. fuscipennis* Big. 1885.
,, *O. varipes* Walk. 1849.
Nord-Amerika: *O. nebulosa* Say, 1823.
,, **O. pallida* Say, 1823.

Man sieht, dass schon die grosse Entfernung der Fundorte aller dieser Arten eine Identität mit einer derselben wenig wahrscheinlich macht, doch darf dieses Argument um so weniger mitsprechen, als wir nichts über den Vogel wissen, auf dem diese hawaiische Art lebt und der möglicherweise ein guter Seeflieger und weit verbreitet sein kann. Indessen hat doch die Vergleichung aller mir zu Gebote stehenden Exemplare und der Beschreibungen der übrigen Arten ergeben, dass höchstens *O. varipes* Walk. berücksichtigt werden könnte, denn nur bei dieser Art sind die Tarsen als schwarz angegeben, was für das vorliegende Stück ganz besonders characteristisch ist. Die vielleicht characteristisch erscheinende Streifung der Tibien, nach der Walker anscheinend seiner Art den Namen gab, kommt auch vielen anderen Arten zu, ist also wohl nicht als zwingend zu verwerten. Wenn ich demnach auch immerhin noch einige Bedenken über diese Identification habe, glaube ich dennoch der systematischen Fixierung der bisher beschriebenen Arten am besten zu dienen, wenn ich das vorliegende Stück zu Walkers Art ziehe und gebe hier die genauere Beschreibung:

Ornithomyia varipes Walk. Länge (wenn ich auf den fehlenden Kopf 1 mm. rechne) 5·5 mm. Thorax glänzend gelbbraun, Basis des Scutellum und Schulterecken etwas heller, Abdomen fast schwarz, Beine gelbbraun mit hellerer Basis der Schenkel, umberbraunen Streifen auf der Aussen- und Innen-Kante aller Tibien, alle Tarsenglieder tief dunkel schwarzbraun, das zweite und dritte Tarsenglied der Hinterbeine an der Basis bis zur Hälfte mit einem weissen Ringe, ein auffälliges und sehr hübsches Merkmal. Auf dem Thorax fällt noch die hellere Längsnaht auf und am Vorderrande etwas seitwärts von ihr zwei ebensolche kurze gelbe Striche. Vorderrand des Thorax fast gerade, seitwärts ragen die Schulterecken dornartig gerade nach vorn; sie sind länger als an ihrer Basis breit. Die Quernaht zwischen Praescutum und Scutum ist seitlich tief furchenförmig, in der Mitte ganz verstrichen, die Längsnaht nur angedeutet. Der Vorderrand des Scutellum ist in der Mitte vorwärts ausgebuchtet, der Hinterrand breit gerundet. In der Mitte hat das Scutellum wie bei den meisten Ornithomyien eine Reihe Querrunzeln, die vorne kurz, hinten länger werden und als deren letzte eine Furche vor dem Hinterrand erscheint, in der eine Reihe von Borsten steht. Ueber die Beine ist ausser dem vorher über ihre Färbung Gesagten nichts zu bemerken. Die Flügel sind fast wasserhell, ganz leicht graubraun gefärbt; über das Geäder ist das Folgende zu bemerken: Die Mediastinalis ist ganz an die Subcostalis angelegt, diese mündet vor der kleinen Querader. Die Radialis mündet viel näher der Cubitalis als der Subcostalis, sodass der letzte Abschnitt der Costalis noch nicht halb so lang ist als der vorletzte. Die hintere Querader ist nur doppelt so lang als die kleine Querader, die hintere Basalzelle nur wenig, nur um eine Spur mehr als die kleine Querader lang ist, kürzer als die vordere. Die Analzelle ist halb so lang, wie die hintere Basalzelle, sodass die beiden ersten Abschnitte der Posticalis gleich lang sind: die Analquerader in der vorderen Hälfte zwar etwas heller als in der hinteren, aber nicht weiss.

(3) *Ornithoica confluenta* Say, var. n. *peroneura.*

Interessant ist, dass auch die dritte Art nach dem amerikanischen Festlande hinweist. Aus der angegebenen geringen Grösse liess sich schon vermuten, dass es sich um eine *Ornithoica* handeln würde und in der That hat die Untersuchung der Exemplare diese Vermutung bestätigt. Sie hat aber zugleich ergeben, dass die Exemplare nicht zu trennen sind von der bisher nur vom amerikanischen Festlande bekannten *Ornithoica confluenta* Say, die ich kürzlich erst nach Exemplaren aus dem Ungarischen National-Museum in Budapest genauer beschrieben und gegen die nächstverwandten Arten abgegrenzt habe[1]. Hier sei kurz wiederholt, dass die Art der *O. beccariina* Rond. sehr nahe steht, sich von dieser aber constant dadurch unterscheidet, dass das weiss pigmentierte Knie in der Discoidalis bei *O. beccariina* Rnd. fast genau in der ideellen Fortsetzung der Analquerader auf den Vorderrand liegt, während es bei *O. confluenta* Say ein deutliches Stück apicalwärts daran liegt. Hier möchte ich auch noch die interessante Uebereinstimmung in der Färbung der Hintertarsen zwischen der eben vorher besprochenen *Ornithomyia varipes* Walk. und den hier erwähnten *Ornithoica*-Arten hervorheben. Bei ihnen allen ist die Basis des zweiten und dritten Gliedes der Hintertarsen weiss.

Endlich verdient noch eines der vier Exemplare besonderer Erwähnung. Die auf der Insel Kona als Parasiten der *Himatione stejnegeri* Wilson und der *Vestiaria coccinea* Forster gefundenen 3 Stücke bieten keine Abweichungen unter einander und gegenüber den drei brasilianischen Exemplaren des budapester Museums. Dagegen weicht das vierte, im Juni auf Kona in 3000′ Höhe als Parasit einer kurzohrigen Eule gefundene Stück sehr wesentlich ab. Bei ihm nämlich erreicht die Discoidalis den Flügelaussenrand nicht, sondern bricht kurz hinter, d. h. apicalwärts von der Höhe des Endes der Costalis auf beiden Flügeln plötzlich ab und ist nicht einmal durch eine Falte zum Rande fortgesetzt. Weil eben nur eines von 4 Exemplaren, die vom gleichen Ort herstammen, dieses Merkmal bietet, das in der ganzen Gattung isoliert dasteht und eher den Eindruck einer pathologischen Bildung als eines constanten Merkmals bietet, habe ich mich nicht etwa für berechtigt gehalten, das Exemplar

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Termeszetrajzi Fuzetek, XXV. 1902. p. 334.

direkt specifisch von den andern zu trennen, glaube aber doch berechtigt zu sein, es durch Namengebung gewissermassen besonders anzumerken und nenne die Form daher *Ornithoica confluenta* Say aberr. *peroneura* m. (πηρός verstümmelt).

Es wäre interessant, zu erfahren, ob vielleicht mehr solcher Stücke vorkommen und sich die Form vielleicht doch als bona species herausstellt. Aehnliche Verbildungen, und als solche betrachte ich die vorliegende nur, habe ich allerdings sonst noch nicht bei Hippobosciden gesehen.

HEMIPTERA.

H. S. Barber, U. S. Nat. Museum, D. C.

By G. W. Kirkaldy.

§ 1. General Remarks.

The Heteropterous Hemiptera or Rhynchota of the Hawaiian Archipelago have been studied to a small extent by F. B. W. White and T. Blackburn, on the collections made some quarter of a century since by the latter. In 1888 the total number recorded was 26 genera and 48 species[1]. To-day 43 genera and 64 species are recorded. The Auchenorrhynchous Homoptera were not dealt with by the British authors, but a few species were noted by C. Stål and V. Signoret, in all 3 genera and 4 species. Five genera and 14 species are here catalogued, and this will be materially increased when my studies on the Jassinae and Asiracinae are completed. Of Stenorrhyncha nothing was previously known, and only 2 genera of Psyllidae, with a single species each, are added. I know of no records of Aphidae and have seen no specimens. I have not examined any Coccidae and am principally indebted to the publications of T. D. A. Cockerell and W. M. Maskell for the records of the 48 species included in this account. Thus the total number of Rhynchota—both Heteroptera and Homoptera—amounts at present to 126 species, of which at least one-third are recent introductions.

My best thanks are due to Dr Sharp for his unfailing courtesy and kindness in giving me information upon every topic connected with the Hawaiian Fauna, while Dr L. O. Howard was so kind as to advise me regarding records of Hawaiian Stenorrhyncha. Mr Edward Saunders also gave me some very valuable help in lending me for examination and comparison certain Palaearctic Miridae and in affording me much information. My greatest difficulty has been the inability to examine the type-specimens of the previously described Hawaiian Fauna, as the Directors of the Perth Museum —where White's types, now unfortunately in bad condition, repose—refused to allow these specimens to be taken away for study. Dr Aurivillius however sent me, with his usual kindness, the types of *Oechalia patruelis* and *pacifica* Stål, *Hyalopeplus pellucidus* Stål, and *Nysius caenosulus* Stål. Mr Blackburn also kindly sent for examination cotypes of his *Nabis rubritinctus*, *koelensis* and *oscillans*, but I regret that these completed the list of all that he was able to send me.

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[1] According to their supposed validity at the present time.

The two most noticeable characteristics of the Hawaiian Rhynchotal Fauna are its extreme poverty, both in species and individuals, and the excessive variability, in structure, pattern and colouring, of the "species."

During his explorations in the Archipelago for some nine or ten years, Mr Perkins—one of the most acute of collectors—has been able to collect only a few thousand individuals, this representing practically everything he could discover after the closest and most careful investigation. Compared with the spoils of an experienced collector even in England during two or three years, this must be considered as an extremely meagre total. It is probable that but few additions to the Hawaiian list among precinctive[1] forms are to be expected, but in Aphididae and Psyllidae there should be a rich harvest, though most probably of recently introduced forms.

It is a difficult matter to compare the Hawaiian Rhynchotal Fauna with any other. The collections received in Europe from the Australian Continent and from New Zealand and other Pacific Isles, are usually but odds and ends, more or less capriciously picked up by the Lepidopterist and Coleopterist. The predominating forms therefore in such a collection are naturally the larger, often conspicuously coloured, Cimicidae, Reduviidae, Cicadidae, the Lepidopterophanous Fulgoridae and possibly the more weird of the Membracinae. Of the Australian and South Pacific Miridae, Geocorinae and smaller Auchenorrhynchous Homoptera we know almost nothing, while it is these very groups that constitute the basis of the Hawaiian Fauna. In the latter, one medium-sized Cimicid (*Oechalia*) is, comparatively speaking, fairly abundant. Lygaeidae (= Coreidae) are represented by the possibly precinctive *Ithamar* and a probably imported *Rhopalus*. Cicadidae and the larger Fulgoridae are absent. The dominant forms are *Oliarus*, *Lasiochilus*, *Orthotylus*, *Koanoa*, *Sarona*, *Nysius*, and *Reduviolus*. Specialists in Rhynchota will therefore readily understand that the work upon this Fauna has been extremely difficult, and that extensive comparisons could be made only with palaearctic, occasionally with American, material in most of the groups. An additional difficulty was created by the almost entire absence in this country of any extensive collections of accurately named extra-European Micro-Rhynchota. My studies were materially lightened by the examination of my friend Mr A. L. Montandon's fine collections of Nabinae, Pyrrhocorinae, and exotic Mirinae, which I have been so fortunate as to acquire, but unfortunately even here elucidatory forms are too often represented only by uniques. Until more adequate knowledge of the Polynesian Fauna is at hand, in the shape of long series of the more variable forms, we must postpone the consideration of the problem of the affinities and origin of the Fauna.

The Hawaiian Fauna is, nevertheless, divisible into two main groups, viz. (1) cosmopolitan and (2) precinctive forms; and also into two further minor groups, viz. (3) Australo-polynesian and (4) recent accidental importations. The precinctive forms owe their large number, however, very greatly to our poverty of knowledge, for the study of exotic Rhynchota is almost in its infancy, and many of those now arranged in the second group may at any time have to be removed to the third.

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[1] "Forms confined to the area under discussion," see Sharp, Fauna Hawaiiensis II. p. 91.

In the first group may be placed *Tetigonia*, *Bythoscopus*, *Oliarus*, *Triphleps*, *Lasiochilus*, *Psallus*, *Orthotylus*, *Acanthia*, *Corixa*, *Anisops*, *Ploiariodes* (though the typical subgenus is precinctive), *Reduviolus*, *Microvelia*, *Orthoea*, *Nysius*, and *Rhopalus*. *Geotomus* has a remarkable distribution, practically cosmopolitan, and the Hawaiian species, which has been described under eleven names, is found from India to New Caledonia. It is of course now impossible in most cases to decide the actual recent origin of these cosmopolitan forms; though the genera are found all over the world, the only cosmopolitan species is *Klinophilos lectularius*, doubtless accidentally introduced in modern times.

There are a large number, as previously noted, of precinctive genera and species; of the former perhaps the most remarkable are *Metrarga*, *Sulamita*, and *Pseudoclerada*; the first must be of considerable antiquity, as it has separated into at least three structurally well-defined species, which are distributed over the Archipelago, though they have not apparently penetrated to Molokai or Kauai. It occurs under rotten leaves and other vegetable refuse, and as Mr Perkins has collected less than 25 specimens altogether, it is to be hoped that the remarkable genus will be found to flourish in Viti or Samoa. *Pseudoclerada* possesses a most remarkable likeness to the Geocorid *Clerada*, a wide-spread insular genus which I regret I know only through Signoret's figure. *Ithamar*, though differing considerably in the proportions of the antennae etc., has a very strong resemblance to the closely allied *Daclera* from Réunion and Australia.

The finest of the precinctive species is *Coleotichus blackburniae*, which indeed is one of the handsomest Heteroptera I have seen, rivalling some of the exotic Cicindelidae. None of the others require special mention here.

The Australo-Polynesian forms embrace the following genera: *Oechalia* with two species—viz. *O. consociale* Boisduval, which ranges over Eastern Australia and New Zealand; the second species, *O. griseus* Burm., is remarkably variable, including *O. pacifica* and *O. patruelis* Stål, and is confined to the Hawaiian Archipelago. *Coleotichus* has its headquarters in the Australo-Polynesian, eight species being recorded from Australia, New Caledonia, Viti Isles, Samoa and our group; two outliers are also found, one from Formosa and one from the Moluccas. *Luteva* has a wide distribution but is perhaps most conspicuous in the Australian region; it extends however to America (viâ the Pacific?), the Oriental Isles viâ New Britain, etc. Of Australo-Polynesian species we may note *Orthoea nigriceps*, which extends to Tahiti and the Philippines; it has been recorded, possibly erroneously, from New Zealand. *Hyalopeplus* has, as at present known, its headquarters in the South Oriental, but as a well-defined species occurs in our group, it may very possibly be extended throughout the South Pacific Islands.

Of recent accidental importations there would appear to be three well-marked instances, viz. *Zelus*, *Alloeocranum*, and *Astemma*. The genus *Zelus* is wholly American, and consists of some 50 or 60 described "species" which are exceedingly variable and much require a structural revision. They are predaceous and of fair size, and it is very unlikely that they would have been overlooked by Mr Perkins, if present. Three specimens were sent to me quite recently[1], long after the principal collections, and it is significant that they were captured in Oahu, the only island of commercial importance. I have little doubt therefore that they are quite recent importations, but, unfortunately, I cannot identify them with any known species. Of *Alloeocranum* only a single specimen was taken, and that some years ago, also in Oahu; the genus is also predaceous and the species of fair size. There are two, *A. quadrisignatus* recorded from North India, and *A. biannulipes* which has an extensive insular distribution, being noted from Malacca, the Philippines, New Caledonia, Viti Isles, Réunion, and Cuba; the last locality is certainly due to accidental introduction. *Astemma* (perhaps better known as *Dysdercus*) is a dominant and apparently ancient genus; some 75 species have been described of which perhaps 55 are now recognized, but I believe that a goodly proportion of the latter are worthless. The species are extraordinarily variable, in size, proportions, pattern and colouring; my large series of the American *ruficollis* Linné, the Oriento-Australian *cingulatus* Fabr., and the African *superstitiosus* Fabr., show most remarkable series of variations. The Hawaiian species, *A. peruvianus* Guér., has been recorded from California and Ecuador. I do not know the species with certainty and Guérin's figure is not very distinctive. It is quite possibly only a form of one of the widely distributed American species. Stål records it in 1870 as found at Honolulu; Blackburn, some few years later, took three specimens of what he believed to be this, "singly by sweeping ferns at a considerable elevation on the Waianae Mountains, Oahu, and Haleakala, Maui." This conspicuous species seems therefore to have obtained a fairly secure footing on the Islands at one time, but is now probably extinct, as Mr Perkins has failed to rediscover it.

One further point of interest is the partial relations between the Pacific Fauna and that of the Mascarene subgroup,—though a great deal more information is yet needed. It is well known that Madagascar forms the western limit of the Polynesian species of Man, and it is not unreasonable to suppose that his colonizing or adventurous expeditions have contributed to the dissemination of certain Rhynchota. Two species are found both in Réunion and the Hawaiian Archipelago, viz. *Clerada apicicornis* Sign. (which is recorded also from Celebes, Bengal, Venezuela, and the Antilles); *Alloeocranum biannulipes* Montr., mentioned before; while, as has previously been remarked, *Ithamar*

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[1] Since this was in print three more specimens have been received from Mr Perkins captured in the same island.

hawaiiensis Kirk, and *Daclera punctata* Sign. (the latter from Réunion), are extremely alike; the latter genus has another species *D. rufescens* Stål, from Australia, with which, unfortunately, I am not acquainted.

On studying the records of localities mentioned under each species, it will be noted that very few species are found under 1000 ft., most being from 2000—4500 ft. The reason of this is that the low-lying parts of the Islands have been for a long period under cultivation, so that almost invariably it is only from the higher elevations that it is possible to obtain specimens. It will not be long before the doom of the last of the precinctive fauna is fulfilled, for Dr Sharp informs the writer that many of the insects lately collected by Mr Perkins have been rescued from the jaws of ants. A curious confirmation of this is before me in the person of an individual of *Metrarga villosa* which has an ant clinging to one of the antennae by means of its mandibles. I have gathered together all the informations possible relating to habits, food-plants, etc., but it is greatly to be regretted that these are so meagre; information as to the metamorphoses and habits of *Metrarga*, *Pseudoreclada*, and *Sarona* would be of the highest interest, but it is to be feared that this is now for ever lost to us.

The variability of the Hawaiian Rhynchota is, as before remarked, most extraordinary. Writers on the other orders have regarded this Fauna as composed of few genera, many of these however containing a large, sometimes very large, assemblage of species, with however few individuals for each species. Dr Sharp notes *Plagithmysus* with 29 closely allied but mostly quite distinct forms, and these forms are in general each found only in one island. Mr Perkins records *Oodemas* with 46, *Proterhinus* with 122!, and *Nesoprosopis* with 52. Mr Grimshaw describes 40 of *Drosophila*, Mr Meyrick 57 *Scopariae*, and Mr Sykes 76 *Leptachatinae*, 101 *Amastrae*, and 107 *Achatinella*. I can only say that after the most exhaustive study, I cannot achieve anything like these results. Whether it be due to a constitution in the Rhynchota differing from that of other orders I cannot say; I can only see a large assemblage of forms varying in the most bewildering fashion, forming incipient species, if one will, but at the same time forming links of such a character that it seems unreasonable to attempt the arbitrary definition of many "species." These variations are not confined to any particular island in each case but are scattered throughout the archipelago.

The genital appendages, upon which great stress—in many cases no doubt correctly—is laid, vary considerably in certain instances; naturally, little variation is to be expected in the case of purely chitinose clasps or hooks; on the other hand the circumambient parts are mostly feebly chitinized (in the smaller forms) and appear to be very liable to post-mortem distortion, so much so that I have not felt it expedient to work out the genital differentia (if indeed these are notable) in the Cixiaria etc., in the absence of freshly killed or alcoholic material.

Although I may be mistaken I feel convinced that the careful breeding ab ovo of long series of sufficiently variable forms (such as *Phytocoris populi*, *Calocoris seticornis*, *Lygus pratensis* or *Cyllecoris histrionicus* in Europe; *Neurocolpus nubilus* or *Poecilocapsus lineatus* in America) would effect a pronounced change in the attitude of many workers towards the limits of specific differences.

Of the 76 species and named varieties definitely acknowledged[1], 68 are, so far as is known, precinctive; that is to say 89·5 per cent.[2]

Interinsular Distribution of species (and named varieties).

	Total spp.	*Peculiar spp.*	*Percentage.*
Hawaii	36	4	11·1
Maui	32	3	9·4
Lanai	24	2	8·3
Molokai	18	0	0
Oahu	53	13	24·6
Kauai	22	1	31·8
Laysan	1	0	0

The percentage of precinctive species.

Hawaii	33	4	12·1
Maui	29	3	10·3
Lanai	24	2	8·3
Molokai	17	0	0
Oahu	48	12	25
Kauai	19	7	36·8
Laysan	1	0	0

These figures are, unfortunately, not quite accurate, as I have had to omit *Reclada moesta*, *Clerada apicicornis*, *Merragata hebroides*, *Eysarcoris insularis*, *Buchananiella sodalis*, and *Klinophilos lectularius*, of which there are no distributional particulars; three of these are precinctive, three extra-Hawaiian. The high percentage of Kauai is very natural, that of Oahu is probably to be explained by the fact that it is the principal island for commerce and that the early records of three species were noted as 'Oahu' or 'Honolulu,' but not necessarily actually from them.

The following Tables will show at a glance the intra- and extra-Hawaiian distribution of the species now described or noted, the Coccidae and *Nysius* being omitted.

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[1] Coccidae (since they are all, probably, accidental recent importations), *Halobates*, *Nysius*, spp., *Bythoscopus peregrinus* and *viduus*, and *Tetigonia varicolor*, the Jassinae and Asiracinae are omitted from these considerations. *Eysarcoris insularis*, *Anisops* sp., and *Rhopalus* sp., are also omitted. *Zelus peregrinus* is counted as non-precinctive.

[2] If we include 16 spp. of *Nysius*, *Halobates*, *Bythoscopus peregrinus* and *viduus*, *Tetigonia varicolor* and *Eysarcoris insularis*, and take *Zelus peregrinus* as precinctive, we obtain 97 species of which 89 are precinctive, that is 91·8 per cent. !

Genus	*Species*	*Hawaii*	*Maui*	*Lanai*	*Molokai*	*Oahu*	*Kauai*	*Laysan*	*Extra-Hawaiian Distribution*[1]
Psyllidae									
1 Hevaheva, gen. nov. ...									
	1 perkinsi, sp. nov.					+			
2 Trioza Forst.									Europe, N. America, &c.
	2 iolani, sp. nov.					+	+		
Tetigoniidae									
3 Bythoscopus Germ. ...									Europe, N. America, &c.
	3 kukanaroa, sp. nov.						+		
	4 kaiamamao, sp. nov.						+		
	? 5 peregrinus Stål					+			
	? 6 viduus Stål					+			
3*a* Tetigonia Geoffr. ...									Cosmopolitan
	7 varicolor Sign.					+			
Fulgoridae									
4 Siphanta Stål									Australia, Tasmania, Java and St Helena
	8 acuta Walk.					+			Australia and Tasmania.
5 Iolania, gen. nov. ...									
	9 perkinsi sp. nov.	+		+		+			
6 Oliarus Stål									Europe, Africa, N. & S. America, N. Zealand, etc.
	10 tamehameha, sp. nov.						+		
	11 kanakanus, sp. nov.	+	+			+			
	12 hevaheva, sp. nov.	+		+					
	13 tarai, sp. nov.		+			+			
	14 tarai, var. morai		+		+				
	15 orono, sp. nov.						+		
	16 opuna, sp. nov.	+							
	17 koanoa, sp. nov.								
Miridae									
7 Triphleps Fieber									Cosmopolitan except Australian Region
	18 persequens White			+					
8 Physopleurella Reut. ...									
	19 mundulus White					+	+		
9 Lasiochilus Reut. ...									Cosmopolitan except Australian Region
	20 denigrata White	+	+	+		+			
10 Nesidiocheilus, gen. nov.									
	21 hawaiiensis, sp. nov.		+						
11 Buchananiella Reut. ...									
	22 sodalis White								
12 Lilia White									
	23 dilecta White		+						
13 Klinophilos Kirk									
	24 lectularius Linné								
14 Sulamita, gen. nov. ...									
	25 lunalilo, sp. nov.	+		+		+	+		
	26 opuna, sp. nov.					+			
15 Psallus Fieber									Palaearctic and Nearctic Regions and St Helena
	27 sharpianus, sp. nov.	+	+						
	var. pelidnopterus	+							
16 Orthotylus Fieber ...									Palaearctic and Nearctic Regions, St Helena and New Guinea
	28 perkinsi, sp. nov.	+	+	+		+	+		
	29 iolani, sp. nov.	+	+			+			

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[1] It follows that when no statement is made in this column the species or genus is precinctive.

Genus	*Species*	*Hawaii*	*Maui*	*Lanai*	*Molokai*	*Oahu*	*Kauai*	*Laysan*	*Extra-Hawaiian Distribution*
	30 kanakanus, sp. nov.	+	+	+		+			
	31 kekele, sp. nov.						+		
	32 daphne, sp. nov.	+		+		+			
	var. kassandra	+		+					
	33 azalais, sp. nov.						+		
17 Kamehameha, gen. nov.	34 lunalilo, sp. nov.	+	+	+		+			
18 Koanoa, gen. nov. ...	35 hawaiiensis, sp. nov.	+	+	+	+	+	+		
19 Cyrtopeltis Fieber ..	36 hawaiiensis, sp. nov.		+						Europe, S. America
20 Nesidiorchestes, gen. nov.	37 hawaiiensis, sp. nov.					+			
21 Opuna, gen. nov.... ...	38 hawaiiensis, sp. nov.					+			
22 Pseudoclerada, gen. nov.	39 morai, sp. nov.	+	+	+	+	+	+		
23 Sarona, gen. nov. ..	40 adonias, sp. nov.	+	+	+	+	+			
24 Baracus, gen. nov. ...	41 hawaiiensis, sp. nov.			+					
25 Hyalopeplus Stål... ...	42 pellucidus Stål	+			+	+			Oriental Region
26 Oronomiris, gen. nov. ...	43 hawaiiensis, sp. nov.	+		+		+			
27 Nesiomiris, gen. nov. ...	44 hawaiiensis, sp. nov.	+	+	+	+				
Acanthiidae									
28 Acanthia Fabr.	45 exulans White				+	+	+		Cosmopolitan
	46 oahuensis Blackb.	+	+	+	+	+	+		
Corixidae									
29 Corixa Geoffr.	47 blackburni White		+			+			Cosmopolitan
Notonectidae									
30 Anisops Spin.	48 sp. ?	+	+			+			Cosmopolitan (except N. Europe)
Reduviidae									
31 Alloeocranum Reuter ...	49 biannulipes Montr.					+			Oriental Region; Islands of Indian and Pacific Oceans; Cuba Generic distribution but not Continental
32 Zelus Fabr.	50 peregrinus, sp. nov.					+			American Regions
33 Ploiariodes, F. B. White	51 whitei White	+	+			+			Almost cosmopolitan, the typical subgenus precinctive
	52 rubromaculata White	+	+		+	+			
	53 pulchra Blackb.					+			
34 Luteva Dohrn	54 insolida White	+							American Regions; Oriental Region; New Britain
35 Nesidiolestes, gen. nov.	55 selium, sp. nov.	+							
36 Reduviolus W. Kirby...	56 innotatus White	+				+			Cosmopolitan (except N. Zealand)
	57 blackburni White	+	+	+	+	+	+	+	
	58 tarai, sp. nov.	+		+	+	+	+		

Genus	*Species*	*Hawaii*	*Maui*	*Lanai*	*Molokai*	*Oahu*	*Kauai*	*Laysan*	*Extra-Hawaiian Distribution*
	59 morai, sp. nov.		+	+	+	+	+		
	60 subrufus White	+	+			+			
	61 rubritinctus Blackb.					+			
	62 sharpianus, sp. nov.						+		
	63 lusciosus White	+	+		+	+			
Gerridae									
37 Microvelia Westw. ...	64 vagans White			+		+			Cosmopolitan
38 Halobates Eschsch. ...	65 sericeus Eschsch.					+			Cosmopolitan pelagic
									Pacific and N. Atlantic (also Indian ?) Oceans
Pyrrhocoridae									
39 Astemma Lep. Serv. ...	66 peruvianus Guér.		+			+			Cosmopolitan (except N. palaearctic and N. Zealand)
									California and Ecuador
40 Orthoea Dallas	67 nigriceps Dall	+	+		+	+	+		Almost cosmopolitan
									Philippines and Tahiti (N. Zealand ?)
41 Reclada White	68 moesta White								
42 Clerada Sign.	69 apicicornis Sign.								Réunion, Celebes, Bengal, Venezuela, Antilles
									Same as genus
43 Sephora, gen. nov. ...	70 criniger White		+	+	+				
	71 calvus White					+			
44 Metrarga White	72 nuda White	+	+			+			
	73 contracta Blackb.			+		+			
	74 villosa White		+			+			
45 Nysius Dall	75 hebroides White								Cosmopolitan
Naeogeidae									
46 Merragata White	76 hawaiiensis, sp. nov.		+		+	+			S. and C. America, Mexico
									Generic distribution
Lygaeidae (= Coreidae)									
47 Ithamar, gen. nov. ...									
48 Rhopalus Schill.	77 sp.								Cosmopolitan
Cimicidae									
49 Oechalia Stål									Australia, New Zealand
	78 griseus Burm.	+	+	+	+	+	+		
50 Eysarcoris Hahn									All over the Old World
	79 insularis Dallas								
51 Geotomus Muls. Rey....									Almost cosmopolitan
	80 pygmaeus Dallas	+			+	+			Oriental Region to New Caledonia
52 Coleotichus A. White ...									Australian and Polynesian Regions, Moluccas, Formosa
	81 blackburniae F. B. White	+				+	+		

§ 2. Systematic account of the Hemiptera.

Suborder HOMOPTERA.

Tribe MONOMERA.

Fam. COCCIDAE.

This family has been dealt with in a preliminary manner by Maskell and Cockerell. Koebele[1] mentions "sixty species or thereabout," but does not catalogue them. Maskell and Cockerell enumerate 47 species, included in 15 genera of which *Aspidiotus*, *Coccus* and *Pseudococcus* are richest; but the validity for specific rank of some of the forms appears to be considered doubtful. I cannot accept responsibility for the nomenclature here adopted, as no work with which I am acquainted gives full and correct references to all the genera which usually are mentioned merely by name, even in the works of Signoret, Cockerell, Maskell, and Green.

There are possibly no precinctive species, though I cannot find that three forms have been noted from outside the Hawaiian area; these three are *Howardia prunicola*, *Aspidiotus persearum* and *A. cydoniae* var. *tecta*.

ICERYA Signoret.

Icerya Sign., 1875, Ann. Soc. Ent. France (5) v. p. 350.

(1) *Icerya purchasi* Maskell.

Icerya purchasi Maskell, 1878, Trans. N. Z. Inst. p. 221; 1895, op. cit. p. 30.

HAB. Hawaiian group, on rose (Craw). "On almost every plant" (Maskell). Also from New Zealand, Australia, South Pacific Isles, N. America, South Africa, etc.

ERIOCOCCUS Targioni.

Eriococcus Targioni in Sign., 1875, Ann. Soc. Ent. France (5) v. pp. 16 & 29.

(1) *Eriococcus araucariae* Maskell.

Eriococcus araucariae Maskell, 1878, Trans. N. Z. Inst. p. 218; 1895, op. cit. p. 21.

HAB. "Hawaiian group" (Koebele); Australia, New Zealand (Maskell).

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[1] "Report of the Entomologist of the Hawaiian Government for 1898," 1899, p. 81.

PSEUDOCOCCUS Westwood.

Pseudococcus Westw. 1839, Mod. Class. Insects Syn. p. 118.
Dactylopius auctt. nec Costa.

(1) *Pseudococcus adonidum*, Linné.

Coccus adonidum Linné, 1767, Syst. Nat. ed. XII. p. 740.
Dactylopius adonidum Maskell, 1895, Trans. N. Z. Inst. p. 24.

HAB. Hawaiian Isles (Koebele[1]); N. America, New Zealand, Australia, etc.

(2) *Pseudococcus albizziae*, Maskell.

Dactylopius albizziae Maskell, 1891, Trans. N. Z. Inst. p. 31; 1895, op. cit. p. 24.

HAB. Hawaiian Isles, on orange (Craw); Australia, etc. (Maskell).

(3) *Pseudococcus calceolariae*, Maskell.

Dactylopius calceolariae Maskell, 1878, Trans. N. Z. Inst. p. 218; 1895, op. cit. p. 24.

HAB. Hawaiian Isles (Maskell and Koebele); New Zealand, Viti Isles (on *Saccharum*), Jamaica.

(4) *Pseudococcus citri*, Risso.

Coccus citri Risso, 1813, Essai hist. nat. orangers.

HAB. "On orange trees" (Cockerell); N. America.

(5) *Pseudococcus vastator*, Maskell.

Dactylopius vastator Maskell, 1895, Trans. N. Z. Inst. pp. 26 & 65, Pl. VI, figs. 12—16.

HAB. Honolulu, on *Citrus* and almost any kind of shrub or other trees (Maskell). "It has been introduced from Japan within the last three years, and hundreds of trees have been destroyed by it in Honolulu" (Koebele in Maskell); Mauritius.

(6) *Pseudococcus virgatus*, Cockerell.

Dactylopius virgatus Cock., 1893, Entom. XXVI. p. 178.

HAB. Hawaiian Isles (Cockerell); Jamaica, on cultivated violets, etc. (Cockerell).

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[1] This record, according to Cockerell, refers probably to No. 4, *P. citri*.

ASTEROLECANIUM Targioni.

Asterolecanium Targ. in Sign., 1870, Ann. Soc. Ent. France (IV) 10, p. 276.

(1) *Asterolecanium pustulans*, Cockerell.

Planchonia pustulans Cock., 1893, Sci. Gossip, p. 77.
Asterolecanium pustulans Cock., 1895, Canad. Ent. XXVII. p. 259.

HAB. "On oleander from Honolulu" (Craw); Florida.

KERMICUS Newstead.

Kermicus Newst., 1897, Ent. Mo. Mag. p. 170.

(1) *Kermicus bambusae*, Maskell.

Sphaerococcus bambusae Maskell, 1891, Trans. N. Z. Inst. XXIV. p. 39, Pl. xvi, figs. 12—19.

HAB. "Sandwich Isles on Bamboo...Honolulu" (Maskell); Mauritius, Ceylon, Brazil.

PULVINARIA Targioni.

Pulvinaria Targ. in Sign., 1873, Ann. Soc. Ent. France (V) 3, p. 29.

(1) *Pulvinaria mammeae* Maskell.

Pulvinaria mammeae Maskell, 1895, Trans. N. Z. Inst. pp. 18 & 19, Pl. v, figs. 8—11.

HAB. Hawaiian Isles on *Mammea americana* (Maskell); on ferns, orange, coffee, pomegranate, alligator pears, and plum trees (Craw); North America.

(2) *Pulvinaria psidii* Maskell.

Pulvinaria psidii Maskell, 1893, Trans. N. Z. Inst. p. 223, Pl. xiii, figs. 10, 11; 1895, op. cit. p. 18.

HAB. "Sandwich Islands, on *Psidium*" (Maskell); Oriental Region.

CEROPLASTES Gray.

Ceroplastes Gray, 1830, Spic. Zool. p. 7.

(1) *Ceroplastes rubens* Maskell.

Ceroplastes rubens Maskell, 1893, Trans. N. Z. Inst. p. 214; 1895, op. cit. p. 12.

HAB. Hawaiian Isles, on *Asplenium* fern (Cockerell); Australia, on *Ficus* and *Mangifera* (Maskell).

(2) *Ceroplastes ceriferus*, Anderson.

Coccus ceriferus Anderson, 1791, Monogr. Coccus ceriferus.
Ceroplastes ceriferus Signoret, 1872, Ann. Soc. Ent. France (v) 2, p. 40, Pl. vii, fig. 3; Maskell, 1895, Trans. N. Z. Inst. p. 12.

HAB. Hawaiian Isles (Koebele); India, Mexico, Jamaica, Australia.

(3) *Ceroplastes floridensis* Comstock.

Ceroplastes floridensis Comst., 1881, Agr. Rep. for 1880, p. 331.

HAB. Hawaiian Isles (Koebele); N. America, Jamaica.

COCCUS Linné.

Coccus Linné, 1758, Syst. Nat. ed. x. p. 455; Mrs Fernald, 1902, Canad. Ent. p. 232.
Lecanium Burm., 1835, Handb. Ent. II. p. 69.

(1) *Coccus acuminatum*, Signoret.

Lecanium acuminatum Sign., 1873, Ann. Soc. Ent. France (v) 3, p. 397, Pl. xiii, figs. 2 & 3; Maskell, 1895, Trans. N. Z. Inst. p. 14.

HAB. "Sandwich Islands, on guava (*Psidium* sp.)" (Maskell); Europe.

(2) *Coccus coffeae*, Walker.

Lecanium coffeae Walk., 1852, List Hom. p. 1079.
L. hibernaculorum Boisd., 1867, Ent. Hort. p. 337; Maskell, 1895, Trans. N. Z. Inst. p. 15.
L. hemisphaericum Targioni in Signoret, 1873, Ann. Soc. Ent. France (v) 3, p 436, Pl. xiii, fig. 9; Maskell, 1895, Trans. N. Z. Inst. p. 15.

HAB. Hawaiian Isles (Koebele); N. America, Jamaica, etc., almost cosmopolitan.

(3) *Coccus hesperidum* Linné.

Coccus hesperidum Linné, 1758, Syst. Nat. ed. x. p. 455.
Lecanium hesperidum Maskell, 1895, Trans. N. Z. Inst. p. 15.

HAB. Hawaiian Isles, on orange (Craw); Algeria, S. Africa, N. America, Jamaica, Chile, Australia, New Zealand.

(4) *Coccus longulum*, Douglas.

Lecanium longulum Douglas, 1887, Ent. Mo. Mag. p. 97; Maskell, 1895, Trans. N. Z. Inst. p. 15.

L. chirimollae Maskell, 1889, Trans. N. Z. Inst. p. 137.

Hab. Hawaiian Islands, apparently common, on *Psidium*, *Bambusa*, *Acacia*, and *Citrus* (Maskell), on *Carica papaya* (Craw), on *Carica papaya* and on *Ohia* (Maskell); Viti Isles, Demerara, etc.

(5) *Coccus mori*, Signoret.

Lecanium mori Sign., 1873, Ann. Soc. Ent. France (5) 3, p. 407, Pl. 12, fig. 9 and Pl. 13, fig. 17; Maskell, 1894, Trans. N. Z. Inst. p. 16.

Hab. Hawaiian Isles (Koebele); New Zealand, Europe.

(6) *Coccus nigrum*, Nietner.

Lecanium nigrum Nietner, 1861, Enemies Coffee Tree, p. 9; Green, 1889, Ind. Mus. Notes, I. p. 117, Pl. vii, figs. a—k; Maskell, 1895, Trans. N. Z. Inst. p. 16.

L. depressum Targioni in Sign., 1873, Ann. Soc. Ent. France, p. 439, Pl. xiii, fig. 11; Maskell, 1893, Trans. N. Z. Inst. p. 220.

Hab. Hawaiian Isles, "on *Psidium* (guava), *Bambusa*, etc." (Maskell); Ceylon, Australia, New Zealand, S. America.

(7) *Coccus oleae*, Bernard.

Chermes oleae Bern., 1782, Mem. Hist. Nat. Acad. Marseille, p. 108.

Lecanium oleae Sign., 1873, Ann. Soc. Ent. France, p. 440, Pl. 13, fig. 12; Maskell, 1895, Trans. N. Z. Inst. p. 16.

Hab. Hawaiian Isles, on *Citrus* and *Psidium* (Maskell); Jamaica, N. America, Europe, New Zealand.

(8) *Coccus tessellatum*, Signoret.

Lecanium tessellatum Sign., 1873, Ann. Soc. Ent. France, p. 401, Pl. 12, fig. 4; Maskell, 1895, Trans. N. Z. Inst. p. 17.

Hab. Hawaiian Isles, on ferns (Craw); Australia, etc.

(9) *Coccus perforatum*, Newstead.

Lecanium perforatum Newst., 1894, Ent. Mo. Mag. xxx. p. 233.

Hab. "On palms from Honolulu" (Craw).

Aspidiotus Bouché.

Aspidiotus Bouché, 1833, Naturg. Ins. I. p. 8; Schädl. Gart. Ins. p. 52.

(1) *Aspidiotus aurantii* Maskell.

Aspidiotus aurantii Maskell, 1878, Trans. N. Z. Inst. p. 109; 1895, op. cit. pp. 2 & 46; Green, 1896, Coccidae Ceylon, p. 42, Pl. 12; Newstead, 1901, Mon. Coccidae British Isles, I. p. 88, Pls. 1, 2, & 11.

Hab. Hawaiian Isles, "from Honolulu, on a species of *Podocarpus* from Japan, a good deal deeper red than the type" (Maskell); "ubiquitous in warm temperate countries" (Maskell); Samoa, Viti Isles, Toga, New Zealand, Australia, New Caledonia on *Citrus*, California, Jamaica on *Eucalyptus*, Cyprus, Syria, Greece, and Ceylon.

(2) *Aspidiotus cydoniae* Comstock.

Aspidiotus cydoniae Comst., 1881, Agricult. Rep. for 1880, p. 295; Maskell, 1895, Trans. N. Z. Inst. p. 3; Green, 1896, Coccidae Ceylon, p. 46, Pl. xiv.

A. cydoniae var. *tecta* Maskell, 1897, Ent. Mo. Mag. xxxiii. p. 240.

Hab. Hawaiian Isles, on *Casuarina* and orange trees, var. *tecta* on "*Ohia*" tree (Maskell); Samoa, Ceylon, N. America.

(3) *Aspidiotus persearum* Cockerell.

Aspidistus (sic) *persearum* Cock., 1898, Entom. p. 240.

Hab. Hawaiian Isles (Cockerell).

(4) *Aspidiotus maskelli* Cockerell.

Aspidiotus longispina Maskell, 1895, Trans. N. Z. Inst. xxvii. pp. 4 & 38, and 1897, Ent. Mo. Mag. xxxiii. p. 241 (nec Morgan).

A. (*Morganella*) *maskelli* Cock., 1897, Bull. U. S. Dep. Agric. Tech. ser. 6, p. 22[1].

Aspidistus (sic) *maskelli* Cock., 1898, Entom. p. 240[1].

Hab. Hawaiian Isles, on *Citrus* and *Mangifera* and on *Kukui* (Maskell); "on *Ohia* tree, from Kailua, N. Kona" (Cockerell); Brazil.

"A minute bright-eyed mite (seemingly *Gamasid*) was very active and numerous amongst" them and "I found many of the *Aspidioti* which appeared to have been partly devoured, whether by this or some other parasite I could not determine" (Maskell).

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[1] Each of these descriptions is marked "n. sp."

(5) *Aspidiotus perniciosus* Comstock.

Aspidiotus perniciosus Comst., 1881, Agricult. Rep. for 1880, p. 304; Lintner, 1895, Bull. N. York Mus. v. pp. 263—320; Howard and Marlatt, 1896, Bull. U. S. Dep. Agric., New ser. 3 (Plate); Cockerell, 1897, Bull. U. S. Dep. Agric. Tech. ser. 6, pp. 1—31; Felt, 1901, Bull. N. York Mus. IX. p. 304, Pl. iii; and Boynton, op. cit. pp. 349—350, Pls. xii & xiii.

HAB. Hawaiian Isles (Cockerell); N. America, China, Japan, Australia.

(6) *Aspidiotus transparens* Green.

Aspidiotus transparens Green, 1890, Ins. pests Teaplant, p. 22.

A. lataniae Green, 1896, Coccidae Ceylon, p. 36, Pl. viii (nec Sign.).

HAB. "On *Seaforthia elegans* at San Francisco from Honolulu" (Cockerell); India, Ceylon.

(7) *Aspidiotus greenii* Cockerell.

Aspidiotus greenii Cock., 1897, Bull. U. S. Dep. Agric. Tech. ser. VI. p. 27, fig. 7.

HAB. "With *A. transparens* from Honolulu" (Cockerell); Ceylon, New Mexico, etc.

(8) *Aspidiotus rapax* Comstock.

Aspidiotus rapax Comst., 1881, Agricult. Rep. for 1880, p. 307, Pl. xii, fig. 6.

A. napax Newstead, 1897, Trans. Ent. Soc. London, p. 94.

A. camelliae Signoret, 1869, Ann. Soc. Ent. France (4) IX. p. 117; Green, 1896, Coccidae Ceylon, p. 44, Pl. xiii (nec Boisduval); Newstead, 1901, Mon. Coccidae British Isles, I. p. 91, Pls. iii, iv & xi.

HAB. Nearly cosmopolitan (Cockerell); Hawaiian Isles (Koebele); New Zealand, North America, Europe, Algeria, etc.

(9) *Aspidiotus duplex* Cockerell.

Aspidiotus duplex Cock., 1896, Bull. Dep. Agric. Ent. Tech. ser. IV. p. 52.

HAB. Hawaiian Isles (Cockerell); America, Japan, etc.

(10) *Aspidiotus hederae*, Vallot.

Coccus hederae Vall., 1829, Mem. Acad. Dijon, pp. 30–33.
Aspidiotus hederae Felt, 1901, Bull. N. York Mus. IX. p. 333, Pl. 7; Newst., 1901, Mon. Coccidae British Isles, I. p. 120, Pls. viii, x, & xii.
A. nerii Bouché, 1833, Schädl. Gart. Ins. p. 52; Maskell, 1895, Trans. N. Z. Inst. p. 4.
Evaspidiotus hederae Leonardi, 1897 & 1900, Rivist. Patol. Veget. VI. & VIII. p. 98.

Hab. Hawaiian Isles, on apple, pear, and palms (Maskell and Craw); Australia, New Zealand, America, Europe. "Almost omnivorous."

AULACASPIS Cockerell.

Aulacaspis Cock., 1893, J. Inst. Jamaica, I. p. 180; 1902, Entom. XXXV. p. 58.

(1) *Aulacaspis rosae*, Bouché.

Aspidiotus rosae Bouché, 1833, Schädl. Gart. Ins. p. 53.
Diaspis rosae Maskell, 1895, Trans. N. Z. Inst. p. 5.
Aulacaspis (*Diaspis*) *rosae* Newst., Mon. Coccidae British Isles, I. p. 168, Pls. xiv, xvii, & xviii.

Hab. Hawaiian Group, on rose (Maskell); almost everywhere on cultivated roses (Newstead); New Zealand, Australia, China, Europe, N. and S. America, and Antilles.

DIASPIS Costa.

Diaspis O. G. Costa (1835??), Faun. Nap. Hem. Cocc. p. 19.

(1) *Diaspis boisduvalii* Signoret.

Diaspis boisduvalii Sign., 1869, Ann. Soc. Ent. France, p. 432; Maskell, 1895, Trans. N. Z. Inst. pp. 5 & 44; Newstead, Mon. Coccidae British Isles, I. p. 153, Pls. xiii, xvi, & xviii.

Hab. Oahu, "a leaf of orchid from Honolulu rather badly infested" (Maskell); almost cosmopolitan under glass; New Zealand, Australia, Europe, N. and S. America, and Antilles.

(2) *Diaspis patelliformis* Sasaki[1].

Diaspis patelliformis Sasaki, 1894, Bull. Coll. Agr. Tokyō, II. pp. 107—121, Pls. 1 & 2[2].

Hab. Craw records this with a note of interrogation from Honolulu on a shrub. Originally described from Japan.

PARLATORIA Targioni.

Parlatoria Targ. in Sign., 1869, Ann. Soc. Ent. France, p. 450.

(1) *Parlatoria proteus*, Ruricola.

Aspidiotus proteus Ruricola, 1843, Garden. Chron. p. 674.

Parlatoria proteus Maskell, 1895, Trans. N. Z. Inst. p. 6; Newst., Mon. Coccidae British Isles, I. p. 140, Pls. 30, 32, 33.

P. proteus var. *pergandii* Comst., 1881, Agricult. Rep. for 1880, p. 327.

Hab. Hawaiian Isles (Koebele); Japan, Australia, Brazil, West Indies, N. America, Europe.

(2) *Parlatoria zizyphus*, Lucas.

Coccus zizyphus Lucas, 1853, Bull. Soc. Ent. France, (3) I. p. xxviii.

Parlatoria zizyphi Newst., Mon. Coccidae British Isles, I. p. 148, Pls. 30, 32, & 33.

Hab. Hawaiian Isles (Koebele); Mediterranean coast, on oranges; China, N. America.

LEPIDOSAPHES Shimer.

Lepidosaphes Shimer, 1868, Trans. Am. Ent. Soc. p. 361.

Mytilaspis Sign., 1870, Ann. Soc. Ent. France, p. 91.

(1) *Lepidosaphes pinnaeformis*, Bouché.

Aspidiotus pinnaeformis Bouché, 1851, Stett. Ent. Zeit. XII. p. 111.

Coccus beckii E. Newman, 1869, Entom. IV. p. 217.

Aspidiotus citricola Packard, 1870, Guide Study Ins. ed. 2, p. 527.

Mytilaspis citricola Green, 1896, Coccidae Ceylon, p. 59, Pl. XX.

M. pinnaeformis Newst., Mon. Coccidae British Isles, I. p. 204, Pls 25—27.

Hab. Hawaiian Isles (Koebele); New Zealand, Tahiti, Australia, N. America, England.

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[1] Newstead makes this a synonym of *D. pentagona* Targioni, a cosmopolitan species.

[2] The spelling of the specific name is on the authority of the Zoological Record, as I have not been able to see the original work. Craw spells it "patellaeformis."

[3] Newstead gives this reference incorrectly as "Mytilaspis pinnaeformis."

(2) *Lepidosaphes flava*, Targioni.

Mytilaspis flava Targ. in Sign., Ann. Soc. Ent. France, 1870, p. 96.
M. flava var. *hawaiiensis* Maskell, 1895, Trans. N. Z. Inst. pp. 7 & 47.

HAB. Hawaiian Isles, "on bark of shade trees at Kauai" (Maskell); Europe, N. America, Australia, New Zealand.

Probably a variety of *M. pomorum* Bouché.

(3) *Lepidosaphes gloverii*, Packard.

Coccus gloverii Packard, 1869, Guide Study Ins. p. 527.
Mytilaspis gloverii Maskell, 1895, Trans. N. Z. Inst. p. 7; Green, Coccidae Ceylon, p. 63, Pl. 22.

HAB. Hawaiian Isles (Cockerell); Australia, on *Citrus* (Maskell), N. America, Japan, S. Europe.

(4) *Lepidosaphes pallida*, Maskell.

Mytilaspis pallida Maskell, 1895, Trans. N. Z. Inst. p. 46; Green, 1896, Ind. Mus. Notes, IV. No. 1.
M. gloverii var. *pallida* Green, Mon. Coccidae Ceylon, p. 65, Pl. 23.

HAB. Hawaiian Isles, on *Podocarpus*, imported into Honolulu from Japan (Maskell);

(5) *Lepidosaphes pomorum*, Bouché.

Aspidiotus pomorum Bouché, 1851, Stett. Ent. Zeit. XII. p. 110.
Mytilaspis pomorum Comst., 1883, Agricult. Rep. for 1882, p. 118 [sep. copy?]; Maskell, 1895, Trans. N. Z. Inst. p. 7; Felt, 1901, Bull. N. York Mus. IX. p. 297, Pl. 1; Newstead, Mon. Coccidae British Isles, I. p. 194, Pls. 24—27[1].

HAB. Hawaiian Isles, on apple (Maskell); New Zealand, Australia, China, N. America, Brazil, Europe, Africa.

HOWARDIA Berl. and Leon.

Howardia Berlese and Leonardi, Riv. Patal. Veget. IV. p. 348.

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[1] This is also probably the same species as *Coccus ulmi* Linné, 1758, and *Coccus linearis* Modeer, 1778.

(1) *Howardia biclavis*, Comst.

Chionaspis (?) *biclavis* Comst., 1883, Second Rep. Cornell. p. 98 [sep. ?].
C. biclavis var. *detecta* Mask., 1895, Trans. N. Z. Inst. pp. 9 & 49.
C. biclavis Green, 1899, Coccidae Ceylon, p. 152, Pl. liv.
Howardia biclavis Leonardi, Riv. Patal. Veget. IV. p. 348.

HAB. Hawaiian Isles, Kona, on bark of shade trees (Maskell); Tahiti, Ceylon, N. America, Southern Mexico.

(2) *Howardia eugeniae*, Maskell.

Chionaspis eugeniae Maskell, 1891, Trans. N. Z. Inst. p. 14; 1895, op. cit. p. 10.

HAB. Hawaiian Isles (Cockerell); Australia.

(3) *Howardia prunicola*, Maskell.

Chionaspis prunicola Maskell, 1895, Trans. N. Z. Inst. pp. 10 & 49, Pl. 2, figs. 3—5.

HAB. Hawaiian Isles, on Japanese Plum (Maskell).

FIORINIA Signoret.

Fiorinia Targ. in Sign., 1869, Ann. Soc. Ent. France, (4) IX. p. 99.

(1) *Fiorinia pellucida* Targ.

Diaspis fioriniae Targ., 1867, Mem. Soc. Ital. Sci. III. no. 3, p. 14, nec descr. ?.
Fiorinia pellucida Targ. in Sign., 1869, Ann. Soc. Ent. France, p. 449.
F. camelliae Comst., 1881, Ent. Rep., p. 329; Maskell, 1895, Trans. N. Z. Inst. p. 10.
F. fioriniae Green, Coccidae Ceylon, p. 73, Pl. 26; Newst., Mon. Coccidae British Isles, I. p. 134, Pl. 29.

HAB. Hawaiian Isles (Cockerell); Europe, Japan, Oriental Region, Australia, N. and S. America.

Signoret quotes *arecae* Boisd. as a synonym of this species and this has often been repeated. The name however does not occur in the "Ent. Hortic." or any other work of Boisduval I can trace.

Tribe *DIMERA*.

Fam. PSYLLIDAE.

No previous records of Hawaiian Psyllids have been made, to my knowledge, and only 18 individuals, all belonging to the sub-family Triozinae, have been collected by Mr Perkins. Eleven specimens are referable to (probably) two species forming a new genus, while the others belong to the widely distributed and specifically numerous genus *Trioza* Först. Dr L. O. Howard informs me that there is a good collection, as yet unworked, in the U. S. National Museum.

HEVAHEVA, gen. nov.

Distinguished by the elongate, sub-parallel tegmina and their distinctly rounded apical margin; costa scarcely arched; the entire absence of a short veinlet, or of a marginal granule, in any of the posterior cells. Upper side of head and thorax glabrous, except for sparse bristly hairs. Cones not very prominent. Stigma present.

Head (with eyes) as wide as mesonotum, a little wider than pronotum. Eyes prominent. Vertex anteriorly strongly carinate transversely. Stigma somewhat obscure, seeming at first to be only a thickening of the costa.

(1) *Hevaheva perkinsi*, sp. nov.

Pl. IV. fig. 1.

Head, thorax, abdomen and tegminal nervures bright ochraceous, paler beneath. Eyes blackish, ocelli rubid. Antennae (pallid) and tarsi fumate. Hairs pale ochraceous. Tegmina hyaline, immaculate. Nervures slightly hairy. Pronotum slightly longer medianly than the head (seen from above), a little shorter than the mesonotum. Width of vertex between eyes subequal to the eyes together. Tegmina $2\frac{4}{5}$ times as long as broad, radius slightly sinuate.

Long. corp. 0·93 mm., lat. 0·51 mm., exp. tegm. $3\frac{5}{7}$ mm.

HAB. (*a*) ? Oahu (August), Perkins; (*b*) Konahuanua ridge (March).

I have definitely determined 3 examples (*a*), while 7 others (*b*) almost certainly belong to this. There is a single male, much larger, greenish in colour and with head structure etc. different, but as it is gummed down on its dorsum on to card, I have left it undetermined.

TRIOZA Förster.

Trioza Förster, 1848, Verh. Ver. Rheinl. v. p. 67.

(1) *Trioza iolani*, sp. nov.

Pl. IV. fig. 2.

♂. Pale green, abdomen beneath spotted and shortly striped with black. Eyes red-brown, antennae pale flavous basally, blackish-brown apically. Elytra hyaline, immaculate, nervures brownish. Tarsi fusco-testaceous. Cones strongly developed. Costa rounded throughout, but not strongly; radius sinuate, apex of 7th cell reaching beyond base of 4th.

Long. 2·8 mm. (to apex abd.); 5·2 mm. (to apex of tegmina); expanse of tegmina 8·4 mm.

Hab. Kauai, Halemanu, 4000 ft. (May).—Oahu, Waialua (Perkins).

I have identified 2 ♂ examples as belonging to this species, the remaining 6 *Triozae* I have not definitely determined.

Division *AUCHENORRHYNCHA*.

[Fam. CICADIDAE.

It is remarkable that no representatives of this family of powerful insects have yet been definitely recorded, though in the "Voyage of the Blonde," "Cicadas" are recorded, though at that date this may well have meant *Oliarus* or *Siphanta*. It is surprising that the genus *Cicadetta* Kolen, so widely distributed throughout the Australian region, has not extended its range to the Hawaiian Isles.]

Fam. TETIGONIIDAE (or JASSIDAE).

Subfam. *BYTHOSCOPINAE*.

Bythoscopus Germ., Kirk.

Bythoscopus Germ., 1833, Rev. Entom. I. p. 180; Kirk, 1901, Entom. XXXIV. p. 340.
Macropis Auctt., nec Lew., typ.

(1) *Bythoscopus kukanaroa*, sp. nov.

Head, pronotum and scutellum pale luteo-flavous; frons transversely clouded with blackish-brown in the middle, clypeus as in *kaiamamao*, pronotum and scutellum obscurely spotted and dotted with dark brown, a reddish-brown spot near the exterior angles of the latter. Pronotum spotted with black at the base. Propleura clouded with black. Elytra dilute olivaceous-brown (tending to a ruddy brownish tinge towards the lateral margins and the apex), closely and minutely irrorated with blackish-brown, except apically; a whitish obscure spot near the apex of the clavus, and one or two smaller ones on the corium. Nervures more or less reddish-brown, claval suture pale flavous; clavus apically black. Legs sordid flavous, spotted with black, tarsi more or less blackish. Head and eyes very slightly wider than pronotum. Eyes about $\frac{1}{5}$th wider than base of vertex. Vertex apically rounded. Anterior margin of pronotum widely roundly convex, lateral angles roundly obtuse-angled, lateral margins scarcely reflexed, postero-lateral margin a little longer than the antero-lateral. Scutellum much shorter than wide. Nervures well-marked, transverse nervures in clavus (these appear to be absent in some European forms).

Long. nearly 6 mm., lat. $2\frac{1}{6}$ mm.

Hab. Kauai, Halemana 4000 ft. (June), Perkins. A single specimen, without abdomen.

(2) *Bythoscopus kaiamamao*, sp. nov.

Very similar to *B. kukanaroa*, but smaller, and the elytra without irrorations.

Head, pronotum and scutellum coloured as in *kukanaroa*, but less maculate; a somewhat obscure horseshoe-shaped mark on scutellum, and a slender longitudinal line on vertex, brownish. Elytra dilute olivaceous, a little clouded with brownish-black here and there, nervures mostly dark brownish. Frons more or less ferruginous, clypeus obscure black, with a central and a lateral, slender, line, flavo-ferruginous. Propleura clouded with black. Legs sordid flavous, clouded and spotted with black; intermediate femora ringed widely near the apex with black. Beneath flavo-ferruginous. Head and eyes very slightly narrower than pronotum, vertex apically rounded. Pronotum, scutellum and nervures as in *kukanaroa.* Eyes about one-third wider than vertex at base.

♀. Last "abdominal" segment, transverse, sinuately emarginate apically, the middle shortly minutely angularly emarginate,—without teeth. Genital segment very long.

Long. $5\frac{1}{4}$ mm. (to apex of elytra), lat. 2 mm.

Hab. Kauai, high plateau (August), Perkins; one specimen only.

(3) ? *Bythoscopus peregrinus* Stål.

Bythoscopus peregrinus Stål, 1859, Eugenie's Resa Insekter, p. 291.

Hab. Oahu (Stål); also recorded from Tahiti, Rio Janeiro, and California.

(4) ? *Bythoscopus viduus* Stal.

Bythoscopus viduus Stål, 1859, Eugenie's Resa Insekter, p. 291.

Hab. Oahu, Honolulu (Stål); also from Tahiti.

I have not identified these two species and have not seen the types.

Subfam. *TETIGONIINAE.*

Of this, the typical subfamily, no examples were collected by Perkins. It is possible that they have been overlooked, as the forms are practically cosmopolitan and have considerable powers of distribution, one species, *Tetigonia albida* Walker, having been recorded from India, Ceylon, Madagascar, South Africa, Philippines, North Australia, etc. One genus and species only has been noted from our Fauna, viz.

Tetigonia Geoffr.

Tetigonia Geoffroy, 1761—62, Hist. abrég. Ins. I. p. 429; Kirk., 1900, Entom. XXXIII. p. 262.
= *Tettigonia* auctt., nec Linné.

(1) *Tetigonia varicolor*, Sign.

Tettigonia varicolor Signoret, 1854, Ann. Soc. Ent. France, (3) II. p. 15, Pl. I, fig. 15.

Hab. Oahu, Honolulu. I have not seen this.

Subfam. *JASSIDAE.*

I have not completed my investigations on this difficult group, and reserve them for a later communication.

Fam. FULGORIDAE.

This great family is represented by a large number of Asiracinae (which will be treated in another communication) and Fulgorinae; and a single genus and species of Poekillopterinae.

Subfam. *POEKILLOPTERINAE* Kirk.

(=Flatida, etc., Stål, 1866.)

This widely distributed group is represented by a single genus and species.

SIPHANTA Stal.

Siphanta Stal, 1866, Hem. Afr. IV. p. 238; Melichar, 1902, Ann. Naturh. Hofmus. Wien, XVII. p. 36.

Phalainesthes Kirkaldy, 1899, Ent. Nachr. XXV. p. 359.

Allied to *Pseudoflata* Guérin, but distinguished by the much shorter second segment of the antennae; differs from *Carthaea* Stål by the unispinose posterior tibiae.

Head, pronotum and scutellum lying in the same plane; vertex roundly produced in front of the eyes, horizontal, acutely marginate, medianly carinate, reticulate; ocelli very distinct, first segment of antennae very short, second comparatively short, scarcely attaining to margins of genae[1]. Scutellum tricarinate. Tegmina highly decumbent, apically truncate, without any series of transverse nervures apically, densely reticulate, costal area transversely venose. Posterior tibiae unispinose. Abdomen compressed.

When describing *Phalainesthes*, I did not know *Siphanta* except by Stål's too laconic diagnosis. Melichar notes it as distributed over Australia, Tasmania, Java, St Helena, and the Hawaiian Archipelago.

(1) *Siphanta acuta*, Walker.

Poeciloptera acuta Walker, 1851, List., II. p. 448.

Phalainesthes schauinslandi Kirkaldy, 1899, Ent. Nachr. p. 359.

Siphanta acuta Melichar, Ann. Naturh. Hofmus. p. 37, Pl. iii, fig. 13.

HAB. Oahu, Hilo (Mus. Bremen); Honolulu Mts. (June, July), Perkins; Australia and Tasmania (Melichar). I have seen 10 examples.

Subfam. *FULGORINAE*.

Tribe *CIXIARIA*.

In this little known tribe are included the genera in which the head is not angulate laterally; the anal area of the hindwings not reticulate, clavus not, or scarcely, granulate; and the claval vein joining the commissural vein near (but not at) the apex of the clavus. There are usually three ocelli, but if only two, the clypeus is usually not laterally carinate. This tribe shades into, and is probably not sharply separable from, the Dictyophoraria. Two genera are present in our fauna, viz. the widely distributed *Oliarus* Stål, which as at present constituted is perhaps a little heterogeneous, and *Iolania*, which I have thought advisable to separate from the widely distributed *Cixius* Latreille. *Oliarus* has five keels on the scutellum, *Iolania* only three.

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[1] This corrects and amplifies my original description.

The discrimination of species in this group is a matter of some little difficulty. We have a fair knowledge of the European species, but only a fragmentary and inadequate acquaintance with extra-European forms. The characters relied on by European authorities are the shape and size of the setigerous granules on the tegmina, the form of the vertex and the colouring of various parts; the first and last I have found of little or no value[1], the second of some degree of worth, but even in this there is some little amount of variation—to how great an extent caused by shrinking in dried specimens I am not sure. In what appears to be the same species the frons and clypeus may be black or pallid or varying between the two. There is, however, usually a more or less large pallid spot at the sides near the junction of these two parts; the pronotum may be black entirely, or pallid entirely, or black with more or less widely pallid margins. The scutellum may be entirely black, or entirely pallid, or black with ferruginous or pallid keels[2]. In *Iolania* the ♂ genital segments are comparatively simple, but are very complex in *Oliarus*, and I have not used them for specific purposes at present, until I have had an opportunity of examining American or Polynesian material.

In these two genera the frons and vertex are contiguous, but separated by a portion of the head which appears truncate when the head is viewed in profile. This I have called the "fossette." It is keeled on each side and is more or less hollowed out. It is usually simple, or more or less obscurely (generally very obscurely) carinate medio-longitudinally; in *Oliarus tamehameha* and *orono*, however, it is distinctly longitudinally bicarinate. Fieber and Melichar consider this part of the head as a portion of the vertex, while some authors apparently treat it as part of the frons.

The genera are easily recognized as follows:

Scutellum with 3 keels; costal margin of tegmina strongly granulate ....(*1*) *Iolania* Kirk.
Scutellum with 5 keels; costal margin not or only obscurely granulate ....(*2*) *Oliarus* Stål.

IOLANIA, gen. nov.

Allied to *Cixius* Latreille, but differing principally by the structure of the vertex.

Vertex anteriorly considerably narrowed, apical margin acutangularly produced beyond apical margin of eyes, base of vertex deeply roundly emarginate; vertex hollowed out, not (or very obscurely) medio-longitudinally carinate. Middle carina of the evanescent posteriorly. Front as in *Cixius*, two ocelli (or a third, very obscure). Posterior tibiae with very feeble spinelets. Type *I. perkinsi* Kirk.

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[1] In Hawaiian forms.

[2] In the palaearctic forms, species are based upon the colour—(1) black or (2) ferruginous—of the scutellar keels. Is not the ferruginous colour, and still more the pallid colour in some Hawaiian forms, due simply to arrested ontogenetic colour-development?

(1) *Iolania perkinsi*, sp. nov.

Pl. IV. fig. 3.

Brownish testaceous, eyes blackish-brown. Beneath testaceous, abdomen deep brown. Tegmina flavo-cinereous-hyaline, generally irregularly and sparsely spotted towards the apex. Interior claval area spotted with blackish-brown, or almost entirely black. Stigma brownish-black. Tegminal granules subequal in size, setigerous, somewhat irregularly placed, usually roundish. Rostrum reaching to apex of posterior coxae.

♂. First genital segment beneath basally deeply-roundly emarginate, apically roundly emarginate, with an acute triangular horizontal projection in the middle. Claspers long, something like those of *Cixius stigmaticus* Scott, but not so stout apically. Anal tube not dentate.

♀. Somewhat larger than the males, the nervures often stronger and more strongly granulate. First three (?) segments of the abdomen beneath straight, fourth roundly emarginate apically, fifth profoundly roundly emarginate apically, sixth sinuately emarginate.

Long. 5—7 mm. (to apex of tegmina); expanse 12½—13½ mm.

Hab. Hawaii, Kona, 2000 ft., October, November; Olaa, September, November, December; above the Amaula Hills, 2000 ft., December; above Hilo, 1800 ft., December; Kaumana, 2000 ft., January; Kilauea, July, August.—Oahu, Waimea watershed, April, Honolulu, 2000 ft., June, July, and October; Koolau range, 2000 ft., April; Kawailoa gulch, April.—Lanai, 2000 ft., July, October; Halepaakai, July (Perkins).

An apparently common species in Hawaii and Oahu. The elytra vary from colourless to a yellowish tinge. One specimen has an irregular inverted V-shaped band at the apex of the corium. The scutellum varies from brown-testaceous (immature?) to blackish-brown. I have seen about 40 examples.

OLIARUS Stål.

Oliarus Stål, 1862, Berlin. Ent. Zeit. VI. p. 306.

Oliarius Melichar, 1896, Cicad. Mittel-Eur. p. 29.

The Hawaiian species of *Oliarus* are distinguished by the costa being not at all or only very slightly granulate, the granules then being as a rule larger than the other tegminal granules, which are minute, round and setigerous. Unlike the palaearctic species, these hairs vary in colour, being sometimes black, sometimes white, sometimes even particoloured, but most often, though not always, the dark parts of the nervures bear dark hairs, the pallid parts pallid hairs. The nervures themselves are very variable in colour, being sometimes almost entirely pallid flavous or fuscous (except apically where they are most often dark) or entirely dark or alternately (on the same nervure) annulate dark and pale. The tegulae, on the colour of which palaearctic species are based, are also dark or pale or both. The frons and clypeus vary in the same way. There are such numerous transitions in all these points, in forms otherwise apparently identical, that it has been impossible to regard them as of any specific value. There is a distinct tendency in several species, particularly *kanakanus* and *tarai*, to melanism in the Molokaian specimens. *O. tamehameha*, *orono*, and *hevaheva* appear to me to be sharply characterized, well defined species. *O. kanakanus* is well separated from the other species, but I am not sure that two distinct but closely allied forms are not included; *tarai* drifts by certain transitions, not too complete however, to *morai*, which, in the absence of structural differences, I have reckoned merely as a var. of the former. *Opuna* seems distinct by the short almost square vertex and the picturation of the tegmina.

The specimens from Molokai are often distinctly darker, particularly in *O. kanakanus* and *O. tarai*. The species may be provisionally divided as follows:

1\. Costa notably arched and thickened near the base; tegmina broad in proportion to their length .... (*3*) *hevaheva* Kirk.
1*a*. Costa not notably arched or thickened, tegmina usually somewhat elongate .... 2.
2\. Larger species, not less than 18 mm. in expanse of tegmina; nervures robust .... 3.
2*a*. Smaller species, not more than 17 mm. in expanse; nervures slight .... 4.
3\. Pallid; lateral margins of vertex subparallel; disc of vertex black with a subcarinate median longitudinal pale stripe; vertical fossette distinctly medianly longitudinally carinate .... (*1*) *tamehameha* Kirk.
3*a*. Dark; lateral margins distinctly converging towards the apex; no pallid median line on vertex and vertical fossette not carinate .... (*2*) *kanakanus* Kirk.
4\. Vertical fossette distinctly bicarinate medianly; tegmina yellowish hyaline, irregularly spotted .... (*6*) *orono* Kirk.
4*a*. Vertical fossette not carinate, or only somewhat obsoletely unicarinate .... 5.
5\. Base and apex of tegmina broadly dark smoky [or altogether so (var. *morai*)]...(*5*) *tarai* Kirk.
5*a*. Tegmina whitish or pale yellowish hyaline, banded or spotted with blackish-brown .... 6.
6\. Vertex scarcely or not produced in front of the eyes, subparallel-sided, apically truncate .... (*4*) *opuna* Kirk.
6*a*. Vertex distinctly produced in front of the eyes; tegmina immaculate; vertex angulate apically .... (*7*) *koanoa* Kirk.

Oliarus is almost cosmopolitan, both continental and insular. Scudder has doubtfully referred to it as an Insect from the Oligocene of N. America.

(1) *Oliarus tamehameha*, sp. nov.

Plate IV. fig. 4.

Pale sordid fuscous. Eyes, vertex on either side of the central narrow longitudinal stripe (except the almost vertical lateral margins), tegminal nervures in part—black; rest of nervures, including stigma (except a short black stripe internally), pale flavescent. Tegmina hyaline, costal margin and tegulae sordid flavescent. Head beneath, sterna and legs pallid except the brownish femora tibiae. Abdomen black, lateral and apical margins pallid. Tegmina with mixed hairs. Vertex slightly produced in front of the eyes, anterior transverse margin almost truncate, slightly rounded or obtusangular, lateral margins a little longer than the space between the eyes at base, about $\frac{1}{2}$ wider than vertex anteriorly. Vertical fossette distinctly bicarinate (the keels outwardly curved), dorsal margin of forehead truncate. Eyes together five-eighths wider than vertex. Ulnar nervure furcate nearer the apex of the wing than is the furcation of the radial[1]; lateral margins of tegmina subparallel, interior margin scarcely ampliate near the apex, length of tegmen a trifle more than three times its middle breadth. Costal area not spotted. First segment of posterior tarsi $3\frac{1}{2}$ times as long as the second.

♂. Rostrum reaching almost to apex of genital segments. 5th abdominal sternite straight apically, 6th obtusangularly emarginate.

♀. Rostrum reaching beyond apex of 6th abdominal segment. 4th abdominal sternite apically straight, 5th slightly obtusangularly emarginate, 6th profoundly angularly emarginate, the middle concealed by the 5th, the lateral one-fifth straight. Terebra long, acuminate, reaching nearly as far as apex of ultimate tergite. 1st genital sternite almost rectangularly emarginate medianly, with a square-ended process.

♂. Long. $7\frac{1}{2}$ mm. (to apex of abdomen); $10\frac{3}{4}$ mm. (to apex of tegmina); expanse 19 mm.

♀. Long. 8 and $12\frac{1}{2}$ mm., expanse 24 mm.

HAB. Kauai, 2000 to 4000 ft. (January, February, July, August, October), high plateau (August); Halemanu, 4000 ft. (May).

(2) *Oliarus kanakanus*, sp. nov.

Plate IV. fig. 5.

Allied to *O. tamehameha* but smaller, darker, tegmina not so elongate, vertex narrower apically.

Black, the interolateral margins of vertex more or less widely, and entirely, genae and pronotum more or less; margins of tegulae, apical margin of 4th abdominal tergite, apical margins of first three or four abdominal sternites, coxae, metasternum more or less,—pallid. Rostrum and legs sordid fuscotestaceous. Tegmina hyaline, nervures white and brownish in wide alternate rings. Stigma black, more or less whitish internally. Clavus immaculate or with two to three brownish-black spots. Nervures with mixed hairs. Costal area spotted or at least discoloured. Lateral margins of vertex apically converging, nearly three times as long as apical width between them and a little longer than basal space between them; apical margin slightly rounded. Ulnar forked nearer apex than is the radial. Eyes together a little more than twice as wide as vertex at base. Vertical fossette subquadrate rotundate, not longitudinally carinate. Rostrum reaches well beyond apex of posterior coxae.

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[1] The extent of the remoteness is a little variable.

♂. Long. 9 mm. (to apex of tegmina); expanse 18 mm.

♀. Long. 10—11 mm. (to apex of tegmina); expanse $19\frac{3}{4}$—$21\frac{1}{4}$ mm.

Hab. Hawaii, Olaa (September), Kilauea (July, August).—Maui, Haleakala, 5000 ft. (May).—Oahu, Honolulu (September).

(3) *Oliarus hewahewa*, sp. nov.

Plate IV. fig. 6.

Similar in general appearance to *O. kanakanus*, but the tegmina are much broader in proportion and more arched costally, costa notably thickened near the base.

Black; lateral margins of vertex, basal nervures (except costa) fuscous, the latter with blackish granules; apical nervures blackish-brown. Lateral margins of frons, narrowly, basal half of rostrum etc. pale brownish-testaceous. Legs pallid, an irregular, curved brownish band near apex of tegmen. Vertex much as in *O. kanakanus*, one-half wider at base than an eye, about two-fifths longer than wide at base, which is $2\frac{1}{2}$ times as wide as apical margin. Forehead subquadrate, not carinate longitudinally. Rostrum reaching beyond apex of posterior coxae. Tegmen $2\frac{1}{2}$ times as long as wide medianly.

♂. Long. 6 mm. (to apex of abdomen); $9\frac{1}{4}$ mm. (to apex of elytra); expanse $17\frac{1}{2}$—18 mm.

♀. Long. $8\frac{1}{2}$ and $10\frac{1}{2}$ mm., expanse $21\frac{1}{2}$ mm.

Hab. Hawaii, Kona, 2000 ft. (February, June).—Lanai, 2000 ft. (February), Perkins. I have seen five males and one female.

(4) *Oliarus opuna*, sp. nov.

Plate IV. fig. 7.

Distinguished from other small species by the shorter, more parallel-sided vertex, which does not (or scarcely) project beyond anterior margin of eyes.

Black; lateral margins of vertex etc., apical margins of abdominal sternites etc. pallid. Legs flavescent, longitudinally striped and marked with black (or only fumate); scutellar keels ferruginous. Tegmina milky hyaline, nervures pale sordid flavous, granules pale brown or black, hairs pale; basal margin, a thin transverse line across the middle, and a slightly undulate thin line from stigma to apex of clavus—brownish-black; transverse apical nervures fumate, nebulose; costal area spotted.

Vertex slightly wider basally than long, one-half longer than wide apically. Vertex at base as wide as (or a trifle wider than) the eyes together, apically truncate. Forehead transverse, not carinate longitudinally. Rostrum reaching beyond apex of posterior coxae. Tegmina three times as long as wide medianly, slightly ampliated apically.

♂ ♀. Long. 4·2 mm. to apex of abdomen, 6·4 mm. to apex of tegmina, expanse 12·1 to 12·3 mm.

Hab. Hawaii, Kilauea (August), 5 examples, Perkins.

(5) *Oliarus tarai*, sp. nov.

Plate IV. figs. 8 & 9.

Black; lateral margins of vertex and of scutellum pale fulvous (scutellum sometimes almost entirely pale fulvous), lateral margins and keel of clypeus and frons ferruginous. Tegmina whitish hyaline, nervures pale brownish, with a dark smoky or brownish-black band at the base, also the apical one-third of tegmina the same tint. Stigma and apex of rostrum black. Base of rostrum, head beneath, legs and sterna fulvous. Tegminal granules and hairs brownish-black. Abdomen black, connexivum black (♂) or pallid (♀) (femora sometimes more or less blackish). Length and basal width of vertex subequal, basal width about three-fifths more than width of an eye, and about one-half greater than apical width, the apical margin slightly rounded or subangulate. Rostrum reaching to base of posterior femora. Vertical margin of forehead angularly emarginate, generally not carinate, sometimes obscurely carinate. Tegmina nearly three times as long as wide.

♀. Terebra somewhat short.

Hab. Hawaii, Olaa (December).—Molokai, 4000 ft. (June).—Oahu, Honolulu, 2000 ft. (March, September); Waimea, 3000 ft. (February); Waianae Mts. (April).

var. *α*. ♂. Lateral margins and keel of frons and clypeus black, apical margin of vertex truncate.

Hab. Maui, Haleakala (May).

var. *β*. *morai*, as in the type, but tegmina and wings entirely dark smoky or blackish-brown.

Hab. Molokai Mts., 4000 ft. (June—September).—Maui, Haleakala, 5000 ft. (May), nine examples from Molokai and one from Maui.

♂. Long. 5¼—5½ mm. (to apex of abdomen); 7—7¾ mm. (to apex of tegmina); expanse 13½—14 mm.

♀. Long. 5½—6½ mm. (to apex of abdomen); 8½—9 mm. (to apex of tegmina); expanse 14¾—15¾ mm.

The distribution of the supposed species of which I have seen 23 examples is therefore Hawaii, Maui, Molokai, Oahu.

(6) *Oliarus orono*, sp. nov.

Plate IV. fig. 10.

Somewhat like *O. opuna*, but larger and stouter, vertex longer, converging anteriorly, and acutangulate apically.

Testaceous, legs and scutellum fuscous, abdomen black. Tegmina yellowish hyaline (at least in part), nervures particoloured, brownish-black and whitish or yellowish. Tegminal hairs black. Base of corium irregularly darkly nebulose, a dark band across the middle, apex sparsely spotted. Costal area immaculate. Stigma pallid. Frons pallid. Width of head across eyes about twice as great as length of vertex, which is one-third longer than wide at base, five-sevenths wider at base than at apex, slightly produced in front of the eyes, apically acutangled. Forehead distinctly bicarinate. Tegmina 3·1 times as long as broad medianly.

♂. Rostrum reaching to apex of posterior coxae.

♀. Rostrum reaching well beyond apex of posterior coxae.

Long. 6 mm. (to apex of abdomen); 8½ mm. (to apex of tegmina); expanse 16½—17 mm.

Hab. Kauai, 4000 ft. (July).

(7) *Oliarus koanoa*, sp. nov.

Plate IV. fig. 11.

Black; tegmina hyaline, immaculate, nervures pallid except the apical ones which are fumate. Costa somewhat fumate. Tegminal hairs black. Stigma blackish-brown. Legs sordid testaceous. Vertex long, narrow, lateral margins subparallel, narrowing a little anteriorly, subrectangular apically; vertex two-thirds longer than wide at base, one-half wider at base than at apex. Tegmina nearly three times as long as wide medianly.

Long. 5 mm. (to apex of abdomen); 6½—8 mm. (to apex of tegmina); expanse 13—13½ mm.

Hab. Widely distributed throughout the group.

There are also a number of forms which apparently differ from the above only by the vertex being truncate apically, and others, with tegmina varyingly spotted, which I have not yet cleared up to my satisfaction.

Subfam. *ASIRACINAE.*

(= Delphacida Stal.)

The investigations upon this group are not yet complete and will form part of a subsequent communication. The only species yet recorded is

"*Delphax*" *pulchra* Stål, 1854, Oefv. Vet. Akad. Förh. XII. p. 246, from Oahu.

Suborder *HETEROPTERA*.

Schiödte's classification is here adopted to a large extent, as being probably nearest the truth of any systems yet promulgated. *Miridae*, *Acanthiidae*, *Corixidae*, and *Notonectidae* are, to some extent at least, representatives of former links in the direct Pagiopod line, while the following order, viz.: *Reduviidae*, *Gerridae*, *Pyrrhocoridae*, *Hebridae*, *Lygaeidae* (= *Coreidae*), *Cimicidae*, is somewhere near the truth in the case of the Trochalopoda.

Tribe *PAGIOPODA*.

Fam. MIRIDAE Kirk.

(= Anthocoridae + Capsidae + Cimicidae auctt.)

Subfam. *ANTHOCORINAE*.

"This group is not richly represented, as far as I have observed, in the Hawaiian Archipelago[1]."

Triphleps Fieber.

Triphleps Fieber, 1860, Wien. Ent. Monatschr. IV. p. 266; Reuter, 1885, Act. Soc. Sci. Fenn. XIV. p. 89.

Probably cosmopolitan, though not yet recorded from Australia or the South Pacific.

(1) *Triphleps persequens*, White.

Triphleps persequens F. B. White, Ann. Mag. Nat. Hist. (4) 20, p. 111; Reuter, 1885, Act. Soc. Sci. Fenn. XIV. p. 661.

Hab. A single specimen (measuring 2 mm. long by $\frac{2}{3}$ mm. wide) from Lanai (November), Perkins.

Physopleurella Reuter.

Physopleurella Reuter, 1885, Act. Soc. Sci. Fenn. XIV. p. 678.

Not found outside the Hawaiian Islands.

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[1] Blackburn, Proc. Linn. Soc. N. S. W. 1888, p. 348.

(1) *Physopleurella mundulus*, White.

Cardiastethus mundulus F. B. White, Ann. Mag. Nat. Hist. (4) 20, p. 111, and (5) 1, p. 365.

Physopleurella mundula Reuter, 1885, Act. Soc. Sci. Fenn. XIV. p. 679.

HAB. "Not rare about the outside of roofs of houses" (White). Oahu, Kaala Mts. (December).—Kaui, Lihue (July), Perkins. I have seen two specimens.

LASIOCHILUS Reuter.

Lasiochilus Reuter, 1871, Oefv. Vet. Akad. Förh. p. 562; and 1884, Act. Soc. Sci. Fenn. XIV. p. 567.

subg. {
Dilasia Reuter, 1871, Oefv. Vet. Akad. Förh. p. 563.
Semiotoscelis Reuter, 1885, Act. Soc. Sci. Fenn. p. 578.
Hapa F. B. White, 1878, P. Zool. Soc. London, p. 465.

Cosmopolitan except Australia and the South Pacific.

(1) *Lasiochilus denigrata*, White.

Dilasia (?) *denigrata* White, 1879, Ent. Mo. Mag. XVI. p. 146.

D. (?) *decolor* White, op. cit. p. 147.

Lasiochilus (*Dilasia*) *denigratus* Reuter, 1885, Act. Soc. Sci. Fenn. XIV. p. 577.

HAB. Hawaii, Mauna Kea, 3000 ft. (White); Kona, 2500 ft. (September); Olaa; above Hilo, 1800 ft. (December): Kilauea (July, August).—Oahu, Honolulu (White).—Maui, Haleakala, 5000 ft. (March, April), Perkins.—Lanaï, 2000 ft. (January); Mts. Koele, 3000 ft. (February and July).

Mr Perkins has collected 23 specimens of *Lasiochilus* which I refer to this species, though none of them accord exactly with the colour descriptions of White and Reuter. These specimens differ also greatly among themselves, and had I had before me only the two or three extreme forms, I should have probably described them as different species. The intermediate forms both of size and colour, however, prevent me from separating them here.

The commonest form is:

(1) Head, pronotum and scutellum shining blackish-brown; elytra dead black with short yellowish hairs, and with the following ochraceous marks, clavus with a large spot about the middle, the extreme base of corium, apical half of clavocorial suture and two or three submedian corial spots; membrane fumate with two or three basal, and one apical spot.

A common form has

(2) elytra immaculate dead black;

and there are two examples of

(3) elytra largely pale dirty ochraceous, soiled with brownish; cuneus blackish-brown.

There are intermediate forms between these.

The other parts vary as follows:

(α) Abdomen from shining black to shining darkish-brown.

(β) Legs from entirely fuscotestaceous to pitchy-black.

Some of the males have a small spine near the apex of the anterior femora, and in some examples, the embolium is not distinctly indicated.

♂ ♀. Long. $2\frac{2}{3}$—$3\frac{1}{2}$ mm.; lat. $\frac{5}{6}$—$1\frac{1}{10}$ mm.

NESIDIOCHEILUS, gen. nov.

Head in front of eyes about equal to length of one eye. Ocelli between the eyes and close to them. Two ultimate segments of antennae slender, more or less pilose. Pronotal annulus scarcely discernible, lateral margins of pronotum narrowly reflexed (at least in part). Base of scutellum opaque, pubescent; metapleura without elevated carina. Elytra minutely and closely irregularly punctured; hamus of wing proceeding from the connecting nervure. Third segment of posterior tarsi almost as long as first and second together.

I have unfortunately had to make a new genus from a single carded example. It cannot be *Lilia delecta* as that insect is said to be regularly impresso-punctate, and the colouring is different. The anterior femora in *Nesidiocheilus* are moreover unarmed, though said to be toothed in *Lilia*. It is most closely allied to *Lasiochilus* Reuter, but is at once distinguished by the punctured elytra.

(1) *Nesidiocheilus hawaiiensis*, sp. nov.

Head, pronotum, scutellum, abdomen above and below (sterna?), first and third segments and apex of second segment of antennae—black or blackish; base of second segment of antennae, clypeus, cuneus, and corium apically, more or less darkly fumate. Rest of elytra and the legs flavescent.

Head (with eyes) one-third wider than long, vertex nearly as wide as the eyes together. Head (with eyes) about as wide as the length of the second segment of antennae, which is thick, a little thicker apically than at the base. Base of pronotum sinuately emarginate, a little more than twice as wide as the head and eyes together, which are not quite so wide as the anterior margin of pronotum. Anterior callosity of pronotum not divided, its base biemarginate. Pronotum irregularly rugulose. Embolium apically dilated. Nervures of membrane hyaline, except one (which does not nearly reach the exterior margin) which is almost contiguous to the apical margin of the wide cuneus.

Long. $4\frac{1}{6}$ mm. (to apex of elytra); lat. $1\frac{1}{3}$ mm.

HAB. Maui, Haleakala, 7000—10,000 ft. (May), Perkins, 1 example.

BUCHANANIELLA Reuter.

Buchananiella Reuter, 1885, Act. Soc. Sci. Fenn. XIV. p. 680.

Insular, occurring also in Tasmania and Madeira.

(1) *Buchananiella sodalis*, White.

Cardiastethus sodalis White, 1878, Ann. Mag. Nat. Hist. (5) I. p. 372.
Buchananiella sodalis Reuter, 1885, Act. Soc. Sci. Fenn. XIV. p. 681.

"Not very common, about the outside of the roofs of houses in company with *C. mundulus*" (White). Mr Perkins has not taken it.

(2) *Buchananiella*, sp.?

"I have a single specimen of an insect allied to *C. sodalis* White, which is probably new[1]."

LILIA White.

Lilia F. B. White, 1879, Ent. Mo. Mag. XVI. p. 147; Reuter, 1885, Act. Soc. Sci. Fenn. XIV. p. 607.

Confined to the Hawaiian Islands.

(1) *Lilia dilecta* White.

Lilia dilecta F. B. White, 1879, Ent. Mo. Mag. XVI. p. 147; Reuter, 1885, Act. Soc. Sci. Fenn. XIV. p. 608.

HAB. Maui, at about 5000 ft. (White). Not taken by Mr Perkins. "Not infrequently met with in beating branches of trees on the higher mountains" (Blackburn).

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[1] Blackburn, Proc. Linn. Soc. N. S. W. (2) III. p. 348.

Subfam. *CACODMINAE* Kirk.

(=Cimicinae, plur. auctt.)

KLINOPHILOS Kirkaldy.

Klinophilos Kirk., 1899, Entomologist, p. 219.

This genus is cosmopolitan, but it is possible that the "Bedbug" so often reported by travellers from various countries may not always be *K. lectularius*.

(1) *Klinophilos lectularius*, Linné.

Cimex lectularius Linné, 1758, Syst. Nat. ed. x. p. 441; Saunders, 1892, Hemipt. Heter. Brit. Isl. p. 186, Pl. 17, fig. 5.

Acanthia lectularia Fabricius, 1775, Syst. Ent. p. 693; Douglas and Scott, 1865, Brit. Hemipt. p. 510, Pl. 17, fig. 7.

Klinophilos lectularius Kirkaldy, 1899, Entomologist, XXXII. p. 219.

HAB. "Distressingly abundant" (Blackburn); "Far too common" (White). Mr Perkins has not sent it to England.

"An insect which cannot be distinguished from this is found in the lower Tertiaries of Scotland[1]."

Subfam. *MIRINAE.*

(=Capsidae, auctt.)

SULAMITARIA, div. nov.

No trace of a cuneal suture in either form. Anterior part of scutellum covered, no pronotal collar. Pronotum and elytra impresso-punctate, membrane with two cells (one obsolete), clavus distinct, corium with a central nervure; wings with an areole, no hamus. Posterior coxae almost contiguous, remote from lateral margin of body; posterior femora subelongate, not incrassate.

SULAMITA, gen. nov.

Head broad, strongly marginate at base; with eyes much wider than anterior margin of pronotum; strongly declivous, almost horizontal, anteriorly rounded; antennae placed close to eyes, almost at apex of head (as seen from above); first segment two-thirds longer than head (as seen from above), second $2\frac{1}{2}$ times as long as first. Pronotum, head basally, scutellum, pleura and elytra strongly, impresso-punctate.

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[1] In Kirby, 1892, J. Linn. Soc. XXIV. p. 111.

Pronotum narrowed in front but not collared; mediolongitudinally carinate; posteriorly produced over anterior margin of scutellum; twice to $2\frac{1}{2}$ times as long as head, and nearly four times as long as scutellum (macropterous) or $3\frac{1}{2}$ times (brachypterous); claval commissure 3—$3\frac{1}{2}$ times as long as scutellum.

Macropterous: corium very long, one-half longer than abdomen, apically acuminate, apical margin sinuate, costal margin narrowly reflexed; corium with an apically evanescent mediolongitudinal nervure.

Brachypterous: like the former but altogether much shorter.

Type *Sulamita lunalilo* Kirk.

1. Puncturation strong and fine ....(*1*) *lunalilo*, sp. nov.
1a. Puncturation scattered and superficial ....(*2*) *opuna*, sp. nov.

(1) *Sulamita lunalilo*, sp. nov.

Plate IV. figs. 12—14.

More or less shining, very variable in pattern. Head, pronotum, scutellum and clavus black; pronotum mediobasally and clavus medioapically, obscurely pallid. Corium black, interior area and apicoexteriorly, pallid cinereo-testaceous. Beneath black, except antennae and legs which are immaculate pallid testaceous; third and fourth and apex of second segments of antennae fumate. Rostrum pallid, apically fumate. Membrane hyaline subfumate, nervures subfumate. Vertex very finely punctured except submedianly on each side; nearly three times as wide at base as one eye. Eyes touching pronotum. Rostrum reaches base of intermediate coxae, short, thick; fourth segment flattened, dilated. Antennae a little shorter than body-length including elytra, or a little longer than length to apex of abdomen; second segment $2\frac{1}{2}$ times as long as first, about three (?) times as long as fourth[1]. Pronotum anteriorly sometimes not impresso-punctate, but subrugose-punctured; base of pronotum subtruncate (slightly subangularly emarginate); posterior femora not reaching apex of abdomen; coxae practically contiguous.

Var. Head brownish, anterior half of pronotum, apex of second apical two-thirds of third, and fourth (entirely) segments of antennae, scutellum, apical margin of corium, and the ventral surface—black. Pronotum sometimes distinctly, though slightly, constricted and transversely impressed.

Long. $2\frac{1}{4}$—$3\frac{1}{4}$ mm.; lat. $\frac{6}{7}$—1 mm.

Hab. Hawaii (September), Kona, 2000—3500 ft. (July, September to November).—Oahu, Mohuleua (April); Waianae Mts. (April).—Lanai, Halepaakai (July).—Kauai, high plateau (August); Makaweli, 2500 ft. (February), Perkins. I have examined 26 specimens.

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[1] Antennae unfortunately always a little shrivelled.

(2) *Sulamita opuna*, sp. nov.

I separate this somewhat hesitatingly from the first, but the puncturation of pronotum and elytra (especially of the former) is very much more scattered and superficial, and the anterior lobe of pronotum is more constricted. Pallid cinereo-testaceous, punctures brownish-testaceous. Eyes, inner margin of corium in great part, and a spot near the middle of apical margin, also extreme apex—blackish-brown. Pronotum more or less clouded in the middle. Beneath pallid testaceous, sterna blackish.

♀. Long. 4 mm.; lat. $1\frac{1}{6}$ mm.

HAB. Oahu, Kaala, 2000 ft. (April); 1 example.

Division CHLAMYDATARIA Kirk.

(= Plagiognatharia Reuter.)

PSALLUS, Fieber.

Psallus Fieber, 1858, Wien Ent. Monatschr. II. p. 320; Reuter, 1884 (?)[1], Act. Soc. Sci. Fenn. XIII. p. 101.

Recorded from the Palaearctic and Nearctic Regions and from St Helena, but it is probably cosmopolitan.

(1) *Psallus sharpianus*, sp. nov.

Plate V. fig. 31.

♂ ♀. Macropterous.

Pale sanguineous spotted all over (including femora and tibiae) with black tuberculate spots, except on the more or less infumately luteous membrane. Pubescence mixed, pale and black. First segment of antennae pale fulvous, second more or less fulvous, third and fourth black. Spines of posterior tibiae and the apical segment of posterior tarsi, black. Cuneal suture generally narrowly pallid, wings iridescent (violet, purple, crimson, and green). Abdomen above blackish or livid. Ventral surface pale luteous, spiracles black. Vertex somewhat faintly longitudinally impressed. First segment of antennae somewhat incrassate, second $4\frac{2}{5}$ times as long as first, five-sixths longer than third, $2\frac{1}{5}$ times as long as fourth, and subequal to base of pronotum. Rostrum scarcely reaching beyond intermediate coxae. Pronotum not (or very slightly) transversely impressed. Posterior femora greatly incrassate, tibiae

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[1] As far as I have yet been able to ascertain, separate copies of Reuter's paper were issued 1878, but the volume of the Acta containing it was not distributed till 1884.

strongly spinose, about four times as long as tarsi, third tarsal segment not shorter than first and second together.

♂. Second segment of antennae somewhat evenly thickened; vertex about as wide as the eyes together. First genital segment three times as long as the ultimate abdominal; forceps sickle-shaped, ribbon-like.

♀. Antennae slender, vertex one-half wider than the two eyes together. Ultimate abdominal segment above roundly emarginate, beneath widely biemarginate.

Long. 3·3—3·5 mm.; lat. 1·2 mm.

var. *α*. The sanguineous replaced by luteous.

Hab. Of the type and var. *α* I have seen 17 examples from Hawaii, Kona, 4000 ft. (July, August); Kilauea (August).—Maui, Haleakala, 5000 ft. (October).—Kauai, Halemanu, 4000 ft. (May).

var. *β*. *pelidnopterus*, var. nov.

Blackish-brown, cuneus (more or less), femora (more or less), apical half of head, lateral margins (widely) of pronotum, and two spots at base of pronotum—yellowish.

Hab. Three examples from Hawaii, Hualalai, 5000 ft. (August). The forceps is identical with that of the type. The tuberculate spots are visible in an oblique light.

P. sharpianus, which I dedicate with pleasure to my friend Dr David Sharp, from whom I have received many entomological kindnesses, is nearest allied to *P. atomosus* Reuter. In some respects it is near *Plagiognathus* (sens. lat.) but the granulate eyes, and the long third segment of the posterior tarsi as well as the general facies, include it in *Psallus*.

Division *Heterotomaria* Kirk.

(= Cyllocoraria Reut.)

ORTHOTYLUS Fieber.

Orthotylus Fieber, 1858, Wien Ent. Monatschr. II. p. 315; Reuter, 1884, Act. Soc. Sci. Fenn. XIII. p. 342.

Distributed throughout the Palaearctic Region. Recorded also from North America, St Helena, and New Guinea; probably cosmopolitan. Five species are now described, but there are several more apparently in material recently received from Mr Perkins.

1. Ground colour pale greenish (no red present) .... 2.
1*a*. Ground colour reddish or at least largely red, or variegate .... 4.
2. Elytra (membrane very rarely excepted) not smoky or blackish. Eyes the same size in both sexes .... 3.

2*a*. Elytra (at least the clavus) largely smoky or blackish. Eyes much larger in the male than in the female .... (*3*) *kanakanus* Kirk.
3. Pubescence whitish, unmixed .... (*2*) *iolani* Kirk.
3*a*. Pubescence whitish, mixed with black bristly hairs .... (*1*) *perkinsi* Kirk.
4. Elytra almost immaculate sanguineous .... (*4*) *kekele* Kirk.
4*a*. Elytra variegate .... 5.
5. Elytra largely sanguineous or blackish (var. *kassandra*). Cuneus always more or less sanguineous .... (*5*) *daphne* Kirk.
5*a*. Elytra blackish and pale fulvotestaceous. Cuneus with a large black spot, not at all sanguineous .... (*6*) *azalais* Kirk.

(1) *Orthotylus perkinsi*, sp. nov.

Finely punctulate, furnished above with short blackish bristly hairs and thin pale whitish pubescence. ♂, ♀. Concolorous and macropterous.

Bright dark green (varying through all shades to pale testaceous [after death ?]), including cuneus. Head, anterior part of scutellum, apical part of cuneus, membranal nervures (sometimes), greenish-testaceous. Basal segment and basal half of second segment of antennae, pale reddish-brown, with three black bristles; apical half of second segment, the third and fourth segments, eyes etc., blackish. Legs testaceous; apical segment of tarsi and the tibial bristles, black. Abdominal tergites blackish-brown, at least apically; sternites testaceous or pale greenish-testaceous. Head about as long as first segment of antennae, vertex longitudinally impressed. Rostrum somewhat short, reaching to apex of intermediate coxae. First segment of antennae incrassate, the rest slender; second segment four times as long as the first, one-half longer than the third, which is twice as long as the fourth. Vertex three-fifths wider than one eye. Pronotum trapeziform, exceedingly minutely granulate, posterior margin very slightly reflexed. Posterior femora incrassate, tibiae more than six times as long as the tarsi, which are short, with subequal segments (third a trifle the shortest). Male forceps very minute.

♂. Long. $3\frac{1}{4}$ mm. ♀. Long. 4 mm.; lat. $1\frac{1}{2}$ mm.

Very similar to *O. virescens* Douglas and Scott, but is distinguished by the proportions of the antennae and rostrum, and by the much smaller male hooks.

Hab. Hawaii, Kilauea (July—September, December).—Maui, Haleakala Mts., 5000 ft. (October).—Lanai, Halepaakai (July), 2000 ft. (January).—Oahu, Waianae Mts., leeside, 2000—3000 ft. (February).—Kauai, high plateau (August), Makaweli Mts., 2500 ft. (October). I have seen 32 examples, of which 25 are from Kilauea.

(2) *Orthotylus iolani*, sp. nov.

Very similar in proportions and colouring to the preceding, but antennae a little slenderer (especially first segment), and the conspicuous short black bristly hairs with which *O. perkinsi* is vestured, are absent (except very rarely and sparingly on the head). Vertex seven-ninths wider than one eye.

HAB. Hawaii, Kilauea (July—September); Kona, 4000 ft. (July); Hualulai, 5000 ft. (August).—Maui, Haleakala, 5000 ft. (October).—Oahu, Pali (December), Waianae coast (January). I have seen 48 examples, the majority from Kona and Kilauea.

(3) *Orthotylus kanakanus*, sp. nov.

Plate V. fig. 27.

Closely allied to *O. iolani*, but both sexes are largely fumate, and the males have much larger eyes.

Head, pronotum, scutellum, and elytra pale greenish or pale greenish-testaceous, more or less fumate, clavus nearly always entirely so. Membrane darkly fumate. Pubescence pale, unmixed (except very rarely, on the vertex).

♂. Width of vertex and one eye subequal.

♀. Width of vertex and one eye in same proportions as in *O. iolani*.

HAB. Hawaii, Kilauea (July, August); Olaa (September).—Oahu, Pipturus back of Tantalus (November).—Lanai, Koele Mts., 2000 ft. (January).—Maui, Haleakala, 5000 ft. (October).

(4) *Orthotylus kekele*, sp. nov.

Plate V. fig. 28.

Pale sanguineous (or sanguineo-fulvous)—including membranal nervures—with mixed pubescence—pale and dark. Eyes, third apical segment of antennae, apical segments of rostrum and of tarsi, bristles of posterior tibiae, blackish. Cuneus saturated sanguineous, membrane subhyaline, immaculate. Ventral surface and legs pale testaceous, femora pale sanguineous at the apex. Vertex submarginate basally. Second segment of antennae five times as long as the first, twice as long as the third, which is very slightly longer than the fourth. Rostrum reaching to posterior coxae. Posterior tibiae five times as long as tarsi, third tarsal segment subequal to the other two together. Pronotum immarginate, transversely impressed just behind the anterior margin.

Long. 3·4 mm.; lat. 1·3 mm.

Allied to *O. perkinsi* Kirk.

HAB. Kauai, high plateau (August).

(5) *Orthotylus daphne*, sp. nov.

Plate V. fig. 24.

Red, brown and white—variegated. Pubescence mixed; the pale, silvery hairs being very thick and in little clusters. Head silvery white, a sanguineous inverted V in the centre of vertex. Eyes blackish-brown, antennae sordid testaceous, basal segment more or less sanguineous. Pronotum pale fulvo-fuscous, lateral and posterior margins very narrowly pale livid; anterior margin (except laterally) sanguineous, broadly bordered posteriorly by pale livid. Scutellum pale greenish-white variegated with livid and sanguineous. Clavus livid fulvous with two long sanguineous streaks on exocorium; extreme apex (externally) of the latter, white. Cuneus basally white, apically sanguineous. Membrane hyaline, apically fumate, not maculate; nervures sanguineous. Femora apically sanguineous, rest of legs testaceous, including apical segments of tarsi. Posterior tibiae sometimes dark at extreme apex. Ventral surface sordid testaceous, genital segments more or less sanguineous. Rostrum slender, reaching to intermediate coxae. Second segment of antennae four times as long as first, twice as long as third and nearly three times as long as fourth. Vertex very slightly narrower at base than the two eyes together. Posterior tibiae five times as long as tarsi, third tarsal segment very slightly longer than second.

Long. 3 mm.; lat. 1·4 mm.

Hab. Hawaii, Kona, 2000 ft. (December).—Lanai, 2000 ft. (December).—Oahu, Waianae Mts., leeside 2000—3000 ft. (April); Waimea watershed (April); Waialua (March). A very beautiful little species of which I have seen 11 examples.

O. daphne, var. nov. *kassandra*.

Plate V. fig. 25.

A melanic form of the above; head and cuneus silvery white, more or less fumate. Pronotum and elytra rich deep velvety blackish-brown; clavus somewhat obscure; a narrow apically narrowing sublateral streak on corium, and the scutellum silvery white, variegated with pale sanguineous. Cuneus apically and the membranal nervures rich sanguineous. Membrane pallid hyaline, apically fumate. Beneath brownish-black, genital segments more or less sanguineous. Legs pallid testaceous, posterior femora above blackish. Tarsi apically fumate. Pubescence as in the type. I have seen two examples.

Hab. Hawaii, Kilauea (August).—Lanai, 2000 ft. (December).

(6) *Orthotylus azalais*, sp. nov.

Plate V. fig. 26.

Pale fulvotestaceous; eyes, a solid triangle on the basal half of the pronotum in the middle, scutellum (except posteriorly), clavus in part, corium interiorly, a large round spot at base of cuneus, basal segment of antennae and entire ventral surface, black. Vertex and pronotum sparingly streaked with sanguineous. Legs pallid, posterior femora dark. Vertex one-half wider than one eye. Other proportions as in *O. daphne*.

Hab. Kauai. I have seen 10 examples from Makaweli, 2000 ft. (June); Waimea Mts., 3000 ft. (June). There are also a number of perplexingly variable forms of this difficult genus which I have not yet satisfactorily separated.

KOANOA gen. nov.

Recognised by the dark metallic appearance and by the slender, short rostrum.

Head short, strongly declivous, much longer than high, genae low; second segment of rostrum a little thicker at apex than at base, third a little longer than second, apex of fourth reaching to base of mesosternum. Eyes touching pronotum. Posterior coxae somewhat long, apically contiguous, not very remote from lateral margins of abdomen, posterior femora scarcely incrassate, extending as far as, or a little beyond, apex of abdomen. Elytra extending far beyond apex of abdomen. Cuneus declivous, fracture very deep. Elytra (♂) scarcely rounded laterally; (♀) laterally distinctly rounded. Abdomen much slenderer than thorax, at least in the ♂.

(1) *Koanoa hawaiiensis*, sp. nov.

Pitchy black, or greenish-black, shining above and beneath; sterna and intermediate and posterior coxae more dilute. Pronotum, scutellum and elytra thickly clothed with easily divested pallid hair. Antennae (excluding first segment), legs, rostrum, fuscotestaceous; posterior femora more or less banded with blackish-brown medianly. Membrane dark fumate. Antennae somewhat pilose, second segment nearly three times as long as the first, two-thirds longer than third, and a little more than twice as long as fourth. Pronotum truncate at the base, which is scarcely twice as broad as the length of the second segment of antennae, lateral margins almost straight. Third segment of posterior tarsi longer than either first or second.

♂. Vertex slightly narrower than one eye; second segment of antennae as stout as the first, much stouter than the third.

♀. Vertex slightly narrower than the two eyes together; second segment of antennae much thinner than the first, scarcely thicker than the third or fourth.

Long. ♂ 3·3 mm. ; ♀ 2·6 mm. ; max. lat. ♂♀ 1·4 mm.

Hab. Hawaii, Hualalai, 5000 ft. (August) ; Kona 4000 ft. (July) ; Kilauea (July to September, December), above Hilo 1800 ft. (December).—Maui, Haleakala 4000 to 5000 ft. (May). —Lanai, 2000 ft. (January).—Molokai, 3000 ft. (June).—Oahu, Mts. near Honolulu, 2000—3000 ft.—Kauai, 4000 ft. (June to August) ; Makaweli, 2500 ft. (February) ; Halemanu, 4000 ft. (May) ; Koholuamano (April). An apparently common species.

Kamehameha, gen. nov.

Has the appearance of a small *Phytocoris*, Fall., and differs from the other forms of Heterotomaria by marmorate membrane, sulcate vertex etc.

Vertex convex, declivous, distinctly longitudinally sulcate. Eyes touching pronotum. Rostrum reaching to middle of abdomen, or at least to one-third of its length. First segment of antennae incrassate, much longer than vertex, second to fourth segments very long. Pronotum distinctly rounded basally ; lateral margins almost straight ; scarcely or not callose anteriorly. Elytra (♂♀) reaching far beyond apex of abdomen ; membrane marbled. Head and pronotum with strong sparse bristly hairs, antennae and legs with strong bristly hairs. Posterior femora deeply longitudinally sulculate.

(1) *Kamehameha lunalilo*, sp. nov.

Plate V. fig. 22.

Head and pronotum rich olive brown, the latter more or less with paler olive-brown on the posterior margin, and apically more or less pallid. Eyes blackish, very narrowly margined with sanguineous. First segment of antennae dark olive brown, apically narrowly sanguineous, second to fourth sordid testaceous, second apically blackish-brown. Scutellum more dilute. Elytra pale olive-brown [rich bright green when fresh], (the margins and nervures very narrowly and more or less interruptedly sanguineous), obscurely spotted with paler olive-brown[1]. Membrane whitish subopaque, marbled with pale greyish-brown, a conspicuous whitish wedge on the exterior margin immediately apical to the cuneus, followed apically by a conspicuous greyish-brown wedge ; nervures concolorous. Wings iridescent hyaline, nervures pale sordid testaceous. Abdomen above sordid testaceous. Head beneath, sterna and legs, pallid testaceous, tibiae (at least the two first pairs) annulate or spotted closely with black ; apical two-thirds of posterior femora blackish-brown, spotted with testaceous. Abdomen beneath, except mediobasally, blackish-grey. Rostrum pallid. Head, pronotum, and elytra, covered

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[1] In some specimens, including the type, the costal area and cuneus are testaceous, spotted with rich brown.

with golden pubescence and short pallid hairs. First segment of antennae twice as long as the length of one eye (seen from above); antennae a little longer than length of insect to apex of elytra; second segment $3\frac{4}{5}$ as long as first, one-third longer than third, first and fourth subequal; second segment nearly twice as long as basal width of pronotum. Posterior tibiae very long, five times as long as tarsi, first tarsal segment slightly shorter than second, which is slightly shorter than third (measured beneath).

♂. Vertex slightly narrower than one eye.

♀. Vertex subequal in width to the eyes together.

Long. $4\frac{3}{4}$ $5\frac{1}{2}$ mm.

Hab. Hawaii, above Hilo, 1800 ft. (September).—Olaa, 1500 ft. (September, November, December); Kona, 2000 ft. (December); West Maui Mts., Jao Valley (March). Lanai, 2000—3000 ft. (January, July). Oahu, Waianae, 2000—3000 ft. (February); Honolulu Mts. (November and December), Perkins. I have seen fourteen examples.

The ground colour and markings vary considerably within the limits of greens and browns. The base of head and apex of pronotum may be sanguineous, and the scutellum may be clear pale luteous. The male is usually darker, especialy on the vertex.

Var. ♀. Two pale greenish testaceous longitudinal submedian stripes on pronotum meeting anteriorly.

Division *Camplyoneuraria* Kirk.

(= Dicypharia Reuter.)

Cyrtopeltis Fieber.

Cyrtopeltis, 1861, Eur. Hem. pp. 76 and 323.

Recorded from S. and S.W. Europe and S. America, but probably much more widely distributed.

(1) *Cyrtopeltis hawaiiensis*, sp. nov.

Structurally more closely allied to the Uruguayan *C. chlorogaster*, Berg., than to the palaearctic species.

Immaculate pale flavotestaceous, furnished with short somewhat bristly concolorous pilosity. Eyes, claws, and fourth segment of rostrum, blackish-brown. Elytra with a faint greenish tinge, membranal nervures same tint. Second and third segments of antennae subequal, each three times as long as the first, all somewhat stout. Rostrum not reaching beyond base of intermediate coxae. Base of pronotum slightly wider than the length of second antennal segment, and twice as wide as the apical margin.

♂ ♀. Long. $3\frac{2}{5}$ mm., lat. $\frac{5}{6}$ mm.

Hab. Maui; Haleakala Crater, October.—Six examples.

Division *Halticaria* Kirk.

(= Laboparia Reut.)

Nesidiorchestes gen. nov.

Closely allied to *Halticus*, Hahn, but differs by first segment of antennae reaching beyond middle of clypeus, rostrum reaching beyond posterior coxae, the stouter antennae etc.

Head (with eyes) wider than long, a little wider than pronotum anteriorly ; vertex convex, not longitudinally sulcate, produced subangularly rotundately in front of the eyes, impressed transversely in front of the marginate base which slightly covers the anterior margin of the pronotum. First segment of antennae stout, reaching almost to apex of clypeus. Rostrum reaching beyond apex of posterior coxae. Pronotum transverse. Clavus, cuneus and membrane not (or only very obsoletely) marked off from corium, except the cuneal fracture which is very deep. Elytra apically sinuately truncate, not reaching nearly to apex of abdomen. Posterior femora enormously incrassate, tibiae long and slender ; third segment of posterior tarsi the longest, second the shortest.

Only the brachypterous form has been taken.

(1) *Nesidiorchestes hawaiiensis*, sp. nov.

Plate IV. figs. 15 and 16.

Head above, pronotum, scutellum and elytra flavofuscous or fulvoflavous—pale or dark ; the markings darker and somewhat variable, viz. : an oblique subcrescentiform spot on each side of the middle of the vertex, several marks on pronotum and scutellum ; three radiating lines (which are more or less interrupted and nebulose, especially apically) on elytra arising near the exterobasal angle and reaching the apical margin, viz. : one sublateral, one marking the obsolete claval suture, and one between the other two. Rostrum brownish ; first two segments of the antennae testaceous, third blackish. Eyes blackish-brown. Abdomen above basally sordid testaceous, apically concolorous with the rest of the upper surface. Beneath and the legs dull violet-black ; coxae, apex of femora, the tibiae and tarsi testaceous. Above and beneath covered with very short and fine pallid hairs, head apically furnished with short black bristly hairs. Tibiae with black bristles. Head (with eyes) twice as wide as its length (viewed dorsally), a little wider than pronotum apically, a little narrower than the latter basally ; head (seen from above) a little more than three times as long in the middle as one eye. Vertex 2½ times as wide as one eye, two-sevenths wider than the two eyes together. Base of clypeus about on a level with the anterior margin of the eyes. Eyes a little incumbent on the pronotum. First segment of antennae three times as long as wide, very slightly shorter than head (seen from above), second segment nearly four times as long as the first, three-fifths longer than the third. Pronotum one-fourth wider at base than apically, twice as wide apically as long. Posterior femora twice as long as the apical width of pronotum, 2½ times as long as wide. Posterior tibiae one-third longer than femora.

Long. 1·8—2·4 mm., lat. max. elytr. 1—1·2 mm.

Hab. Oahu, N.W. Koolau, 2000 ft. (December: Perkins). Five examples.

Opuna gen. nov.

I have placed this provisionally in *Halticaria*, notwithstanding its well-marked collar. It has the general appearance of an *Ortholytus*.

Head short, dorsally viewed; strongly declivous, convex, produced slightly roundly in front of the eyes. Eyes slightly incumbent on the pronotum. Vertex basally marginate. First segment of antennae short, not reaching to apical margin of the eyes. Pronotum transverse, collared apically, the collar convexly rounded posteriorly. Posterior coxae remote from the lateral margins of the abdomen, posterior femora short, incrassate. No alar hamus.

(1) *Opuna hawaiiensis*, sp. nov.

Plate V. fig. 29.

Pale greenish testaceous with concolorous pubescence. Eyes blackish-brown, tibiae black-spined. Second and third segments of antennae subequal; vertex four-fifths wider than the two eyes together, a little wider than apical margin of pronotum. Base of pronotum three times as wide as apical margin.

Long. nearly 2 mm., lat. 1·5 mm.

Hab. S. E. Coast (January: Perkins). Two examples in poor condition.

Pseudoclerada, gen. nov.

This may be regarded for the present as an aberrant Halticarian. Depressed (at least in the macropterous form). . Head porrect, subequal in length to pronotum, a little longer than wide across the eyes. Vertex subconvex, not impressed nor sulcate; subrectangular, a little divergent in front of the eyes (the interolateral margins of which are subobliquely convex), produced triangularly in front of the insertion of the antennae; base carinately marginate. Eyes large. Bucculae short, not a third of the length of the head beneath, which is narrowly, longitudinally carinate posterior to the bucculae. Insertion of antennae nearer the eyes than to apex of vertex. Pronotum with an extremely slender annuliform collar; anterior margin slightly emarginate, base subtruncate. Proxyphus marginate laterally. Costal margin of elytra very narrow, slightly dilated basally. Clavus distinct. Membrane biareolate. Hamus absent. Anterior and intermediate coxae as long as, or a little longer than the femora, incrassate, posterior femora a little remote from lateral margins of abdomen; posterior tibiae six times as long as tarsi, third tarsal segment by a little the longest, second and third inserted subapically. Claws somewhat large, dilated internally near the base, arolia as long as the claws, free, a little thicker at the base, ribbon-like.

(1) *Pseudoclerada morai*, sp. nov.

Plate IV. figs. 18—20.

Dark blackish-brown; base of vertex, legs (except broad bands on the posterior femora), first segment of antennae etc., pallid; base and apex narrowly of exocorium, posterior part of scutellum narrowly, rufotestaceous; membrane hyaline, rufotestaceous, more or less fumate apically. Beneath more or less sordid rufotestaceous, sterna and pleura more or less blackish. Second segment of antennae 2$\frac{2}{5}$ to 3$\frac{1}{4}$ times longer than first, three-fourths longer than the head, and 3$\frac{3}{5}$ longer than the third segment which is a trifle longer than the fourth, each segment a little thinner than the preceding; first and the basal half of the second—smooth; apical half of second and the two ultimate, pilose. Pronotum subrugulose transversely, except on the anterior callosities, lateral margins sinuately divergent, lateroposterior angles rounded, base nearly three times as wide as apical margin. Elytra smooth, somewhat shining[1], rounded laterally; corium without median nervure, costal nervure vanishing before attaining half the length of the corium. Cuneus rounded basally. Antennae and eyes in a line, and about the middle of the head, as seen in profile. Fourth segment of rostrum reaching nearly to apex of posterior coxae, one-sixth longer than third, first three subequal in length.

♂. Eyes very large, prominent, one of them one-fourth to one-third wider than the vertex; head three-fourths longer than one eye.

♀. Eyes much smaller, vertex nearly as wide as the two together. Head more than twice as long as one eye. Seventh abdominal segment beneath widely roundly emarginate, terebra reaching to middle of abdomen.

A very variable species, both structurally and in colouring. Pronotum and scutellum sometimes widely pallid, exocorium rufobrunneous; antennae occasionally more or less annulate, pallid and blackish. Abdomen beneath: each segment apically blackish, basally rufescent, or entirely bluish-black. Tibiae apically and basally black. Posterolateral angles and a wedge in middle of the base of pronotum, pallid.

♂♀. Long. 5—6$\frac{1}{2}$ mm.; lat. 2—3 mm.

(Brachypt.) ♂ 5; lat. 2$\frac{1}{4}$ mm.

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[1] Actually extremely finely and closely punctulate.

Hab. Hawaii, Kona, 4000 ft. (August).—Maui, Haleakala, 5000 ft. (October).—Lanai, Halepaakai, 2000—2500 ft. (January, June—August).—Molokai, 3000 ft. (July).—Oahu, Halemano, Koolau range, 2500 ft. (January); Waialalua, Koolau range; Honolulu, 2000 ft. (September, December).—Kauai, high plateau, 4000 ft. (August, December).

Division *Capsaria* Reuter.

Sarona, gen. nov.

Despite the fact that this genus possesses no collar to the pronotum, I have placed it here temporarily. The presence or absence of the collar is in fact, I believe, a somewhat overrated character. *Lomatopleura* Reut. has none (or only obscurely indicated), but is placed by its author in his Capsaria. *Opuna* has a wide collar, nevertheless, I believe, is more allied to the Halticaria, while, according to Reuter himself, his division Pilophoraria may or may not possess one. The genus has a strong resemblance to the Halticarian *Strongylocoris* Fieber.

Pronotum somewhat superficially rugose-punctured, elytra minutely but strongly punctured. Covered with pale pubescence. Vertex short, strongly marginate, almost vertical, much longer than high; pronotum strongly declivous. First segment of antennae short, scarcely reaching beyond apex of head, subequal to fourth, second four times as long as first, 2½ times as long as third, which is a little more than twice as long as fourth. Posterior femora subincrassate, tibiae 4½ times as long as tarsi, third tarsal segment a little longer than the first, second short. Cuneus declivous. Tibiae tuberculo-maculate, setigerous. Rostrum reaching well beyond apex of posterior coxae.

(1) *Sarona adonias*, sp. nov.

Plate V. fig. 23.

Sanguineous, or fuscosanguineous, head and apical part of pronotum more dilute. Eyes, apical part of second antennal segment, sterna, etc., black. Cuneus and tibiae yellowish, the former narrowly bordered with sanguineous; membrane fumate, nervures sanguineous. Vertex one-fourth wider than the two eyes together. Base of pronotum one-half wider than the head (across the eyes), which is a little wider than apical margin of pronotum.

Long. 5⅓ mm.; lat. 2¼ mm.

Hab. Hawaii, Kona, 8000 ft. (August); volcano, Hilo (August), Koebele; Kilauea (August).—Maui, Haleakala, 4000—5000 ft. (October, March, April).—Lanai, Halepaakai (July).—Molokai Mts., 4000 ft. (December). I have seen 13 examples.

BARACUS gen. nov.

Allied to *Sarona* Kirk., but at once distinguished by the sinuately emarginate base of pronotum, and by the callosely elevated scutellum. Vertex strongly marginate at base, covering pronotum anteriorly, the latter having an exceedingly short collar. Interolateral margins of eyes distinctly diverging apically. Pronotum and scutellum transversely rugulose. Median nervure of corium well developed.

(1) *Baracus hawaiiensis*, sp. nov.

Plate IV. fig. 21.

Head, pronotum, scutellum, and elytra, dark sienna-brown, shining; furnished with short yellowish hairs. Clavus and corium interobasally more or less blackish. Membrane fumate, nervures brownish. Legs entirely pallid testaceous. Head and eyes as wide as the length of the second segment of antennae, vertex about three times as wide as one eye. Second segment of antennae nearly four times as long as the first, more than twice as long as the second, which is three times as long as the fourth, second scarcely incrassate apically. Eyes extending laterally considerably beyond apical margin of pronotum. Base of pronotum $2\frac{2}{3}$ times as wide as the apical margin. Posterior femora scarcely incrassate.

Long. 5 mm.

HAB. Lanai, 2000 ft. (January—July). Three examples.

HYALOPEPLUS Stål.

Hyalopeplus Stål, 1870, Oefv. Vet. Akad. Förh. XXVII. p. 671.

Inhabits Ceylon, Java, Sumatra, British India and the Philippines.

(1) *Hyalopeplus pellucidus*, Stål.

Capsus pellucidus Stål, 1859, Eugenie's Resa Hem. p. 259.

Hyalopeplus pellucidus Stål, 1870, Oefv. Vet. Akad. Förh. XXVII. p. 671.

HAB. Hawaii, Kilauea (August); Kona, 2000—5000 ft. (July, August, November).—Molokai coast (May); 3500 ft. (June); from boggy mountain top, 3000 ft. (June); very far up Kawailoa gulch (March and April), Perkins.—Oahu, Honolulu, Stål; Waianae mountains (April); coast (April), Perkins.

I have seen 17 specimens, including the type kindly communicated by Dr Aurivillius, which vary a little in darkness of colour. One specimen is almost immaculate on the pronotum, and the cuneus is pale yellowish instead of reddish. This may be due to immaturity, but is paralleled in a specimen of *H. vitripennis*, Stål, in my collection from Java.

Division *Miraria* Reuter.

ORONOMIRIS gen. nov.

Closely allied to *Megaloceraea* Fieb., but distinguished by different form of head and the much longer legs.

Elongate. Vertex apically suboval, sulcate longitudinally at the base; frons strongly compressed, produced horizontally in front of the vertex, triangular. Pronotum longer than broad, with five longitudinal keels (lateral, sublateral, and median); base emarginate, exposing anterior part of scutellum. Exterior cell of membrane more or less opaque.

(1) *Oronomiris hawaiiensis*, sp. nov.

Plate V. fig. 30.

Cinereotestaceous (tinged with sanguineous in one specimen), pronotal and scutellar keels a little paler; (brownish next to keels in one specimen). Eyes greyish. Apex o rostrum and the tarsi blackish. A black spot in the basal angle of membrane.

Head as long as (or a trifle longer than) the pronotum, a trifle more than twice a long as wide across the eyes. Vertex two-fifths wider than the two eyes together, the latter touching the pronotum. Second segment of antennae a little longer than third twice as long as the first which is one-half longer than the head; fourth segment short

Base of pronotum as wide as the length of the head, and $\frac{5}{12}$ wider than apic margin of pronotum. Rostrum reaching to apex of posterior coxae. Elytra reachin beyond apex of abdomen. First segment of posterior tarsi twice as long as second a third together, second twice as long as third.

Long. 4·2—5·8 mm.; lat. nearly 1 mm.

HAB. Hawaii, Kona, 3000 ft. to 4000 ft. (September).—Lanai, Koele Mts. 2000 f (January).—Oahu, Waianae plains (April). Six specimens (four from Kona), all somewhat poor condition.

NESIOMIRIS, gen. nov.

Allied to *Teratocoris*, Fieber, distinguished by the length of the antennae, and by the proportions and structure of the tarsi.

Linear, glabrous, vertex transverse, transversely impressed, longitudinally sulcate; basally marginate. Head (and eyes) wider than the anterior part of the posterior lobe of pronotum, produced in a non-attenuated collar behind the margination. Antennae one-half longer than the entire body. Eyes large, remote from pronotum, together as wide as the vertex. Frons not covering the clypeus, which is elongate, reaching nearly as far as base of gula. Rostrum reaching midway between anterior and intermediate coxae; first segment incrassate, its ventral length one-third longer than the length (seen from beneath) of one eye, dorsally produced triangularly a little over the dorsal side of the second segment, which is slender, one-sixth longer than the first, which is four times as long as the third and three times as long as the fourth. Pronotum anteriorly narrowly constricted (not collared), deeply impressed transversely in the middle; anterior lobe porrect, lateral margins slightly divergent posteriorly; posterior lobe raised and rounded, irregularly rugulose, lateral margins slightly divergent posteriorly, base obtuse-angularly emarginate, exposing the anterior margin (the so-called "base" of authors) of the glabrous scutellum, 2½ times as wide as the apical margin. Mesosternum elevated, medio-longitudinally sulculate. Clavus distinct. Exterior area of membrane minute, opaque, interior area large, partly opaque. Stinkgland orifices elongate, somewhat narrow. Legs more or less hairy, coxae apically approximate, anterior coxal cavities very large, not fully occupied by the coxae. Femora long, not notably incrassate; tibiae long and slender. First tarsal segment shorter than second, second and third inserted considerably post-apically.

♂. Seventh abdominal segment apically sinuate.

(1) *Nesiomiris hawaiiensis*, sp. nov.

Plate V. fig. 50.

Rich dark green (on close inspection minutely mottled with whitish) [varying to flavescent (post-mortem?)], whitish-pilose. Second (excluding base), third and fourth antennal segments sordid fusco-flavous. Head and anterior part of scutellum sordid testaceous. Ventral surface, legs etc. testaceous (the latter sometimes more or less greenish). First segment of antennae incrassate, less so apically, cylindrical, twice as long as vertex; remaining segments slenderer, each in proportion to the preceding; second segment a little more than three times as long as the first, which is half the length of the third, third a trifle longer than the fourth. Femora unarmed.

Long. 6¾—7½ mm.

HAB. Hawaii, Olaa (June, September, November); Kona 2000 to 3000 ft. (September, November).—Maui, Haleakala, 5000 ft. (May).—Lanai, Halepaakai, 3000 ft. (January, February, July).—Molokai, 3000 to 4000 ft. (June). I have examined 40 specimens.

Blackburn mentions having some 40 species of Mirinae in his collection. I have noted here 21 with two well-marked varieties, and have still to describe some 10 or 12. The Mirinae are in themselves among the most difficult of Rhynchota, even among the comparatively speaking little varying British forms. Unfortunately, also, they are among the frailest, and many of Mr Perkins' captures in this group are, as was indeed to be expected, in indifferent condition.

Fam. ACANTHIIDAE.

ACANTHIA Fabr.

Acanthia Fabr., 1775, Syst. Ent. p. 693; Reuter, 1896, Act. Soc. Sci. Fenn. XXI. no. 2, p. 1; Kirkaldy, 1899, Entom. p. 218.

Salda Fabr., 1803, Syst. Rhyng. p. 103.

This genus is cosmopolitan, having been recorded from St Helena, New Zealand, and from within the Arctic Circle. A few species frequent heath-lands, though they occur principally at the margins of lakes, ponds, rivers, etc. I have examined 29 specimens from our fauna, apparently representing two species, possibly a small proportion of actually existing forms. The genus is certainly of ancient date, though the only fossil records are from Prussian amber (Ligurian Horizon), and is specially interesting as illustrating the probable route of development, in habit and structure, of the cryptoceratous aquatic bugs (excpt *Nepa* and its allies) from the original terrene Heteroptera. Macropterous and brachypterous forms of both species are found.

Apex of first (interior) areole of membrane not touching apex of second. Head (with eyes) not nearly as wide as base of pronotum; second segment of antennae three times as long as first .... (*1*) *exulans*, White.
Apex of first areole touching apex of second. Head (with eyes) almost as wide as base of pronotum; second segment of antennae twice as long as the first .... (*2*) *oahuensis*, Blackburn.

(1) *Acanthia exulans*, White.

Salda exulans F. B. White, 1878, Ann. Mag. Nat. Hist. (5) I. p. 373.

Belongs to subgenus *Sciodopterus* Amyot and Serville.

White says "pronoti marginibus angustis lateralibus sordide brunneo-albidis"; of the five examples examined, this is true of one only, the other four having these lateral margins entirely black.

Length 4—4¾ mm.

HAB. "Sparingly from wet moss in or on mountains near the Pali" (Blackburn). —Molokai Mts., 4000 ft. (May and June); Kawailoa, from the gulch itself, very far up (March and April).—Oahu, Waialua (March); Koolau range (August).—Kauai, Waimea Mts., 4000 ft. (May), and Koholuamano, 4000 ft. (April), Perkins.

(2) *Acanthia oahuensis*, Blackburn.

Salda oahuensis Blackburn, 1889, Proc. Linn. Soc. N. S. W. (2) III. p. 353.

Belongs to typical subgenus; it is extremely variable in colour, but I cannot discover any notable structural differences confined to any of these variations.

There are five principal varieties, not however well marked off; the only constant feature appearing to be the tiny pallid spot near the apex of the black clavus, and the black pronotum.

(1) Head, pronotum, scutellum, clavus (except a tiny apical spot), antennae above (except base of first), etc.—black. Corium and membrane dirty whitish with a few blackish-brown blotches and the nervures of the latter colour. Abdomen above brownish-testaceous. First and apex of third segments of antennae beneath rufotestaceous. Head beneath and sterna black. Abdomen beneath as above, but darker. Rostrum and legs dirty testaceous, more or less obscurely marked with black.

Oahu, Kaala Mts., 2000 ft. (March); "near a waterfall several miles from Honolulu" Blackburn. Typical form (rare; immature).—Hawaii, Kona, 3000 ft. (December).—Maui, Haleakala, 5000 ft. (April), Perkins.

(2) Corium greenish-black except three or four small pallid blotches. Abdomen above and below deep black. Legs pallid except a broad middle black band on all femora.

Oahu, Kaala, 2000 ft. (March).—Hawaii, Kona, 2000 ft. (December), Perkins.

(3) Like No. 2, but lateral margins of corium somewhat widely immaculate flavous. Legs immaculate brownish-flavous, and a spot of the same colour on each side of the head between the eyes and the ocelli.

Lanai, 2000 ft. (December).—Kauai, Waimea Mts., 4000 ft. (May).—Molokai, 2000 ft. (June).—Maui, Iao Valley (April and May), Perkins.

(4) Like No. 3, but corium dark flavescent with a few black markings.

Oahu, N. W. Koolau (August); Kaala, 2000 ft., on wet rocks, and Honolulu Mts. (August).—Molokai Mts. (September), Perkins.

(5) Like No. 4, but corium pallid rufotestaceous with pale red-brown markings.

Oahu, Honolulu, 2000 ft. (September).—Kauai, Makaweli, 2500 ft. (February), Perkins.

Hab. The habitat of the species may be summed up as "distributed over Oahu, Hawaii, Maui, Lanai, Kauai, and Molokai."

Length $3\frac{1}{3}$—$3\frac{3}{4}$ mm.

Fam. CORIXIDAE.

CORIXA Geoffroy.

Corixa Geoffroy, 1762, Hist. nat. Insectes I. p. 478; Kirkaldy, 1897, Entom. p. 260.

Sigara Fabricius, 1775, Syst. Entom. p. 691.

Corisa Amyot and Serville, 1843, Hémipt. p. 445; Fieber, 1851, Abh. böhm. Ges. Wiss. (v) 7, p. 215.

A large genus of world-wide distribution. An elytron from the early Tertiaries of Rott has precisely the picturation of modern forms, and the genus has been recorded from the Jurassic of Solenhofen.

(1) *Corixa blackburni* F. B. White.

Corixa blackburni F. B. White, 1877, Ann. Mag. Nat. Hist. (4) xx. p. 114, and 1878, lib. cit. (5) I. p. 366.

The lines on the corium are short, interrupted and contortuplicate and are not divided into regular series. Intermediate tarsus very slightly shorter than claws.

♂. Pala boldly arched from the base, suddenly acuminate near the apex.

♀. Pala very like that of *C. pygmaea*, Fieber.

Long. $3\frac{1}{2}$—5 mm.; width across eyes $1\frac{1}{10}$—$1\frac{1}{2}$ mm. The males as usual are a little smaller.

HAB. Oahu, Honolulu (Perkins, 1 ♀); very common in salt-water pools (on the sea-shore) formed artificially for the manufacture of salt (White).—Maui, Lahaina [Mus. Bremen; "plentifully in a pool, October" (Schauinsland)].

I have seen the type in the Perth Museum, and six other examples.

Fam. NOTONECTIDAE.

ANISOPS Spinola.

Anisops Spinola, 1837, Essai, p. 58; Fieber, 1851, Abh. böhm. Ges. Wiss. (v) 7, p. 481.

A genus of world-wide distribution, except North Palaearctic. Some forms, very close to this, are recorded from the early tertiaries of Rott.

(1) *Anisops*, sp.?

HAB. Thirty-nine specimens of a species allied to *A. vitreus* Signoret (from Madagascar, etc.) have been collected by Mr Perkins, 37 from Hawaii, Kona, 3000 ft.

(June); and one each from Maui, Haleakala, 5000 ft. (April), and Oahu, N. W. Koolau (July). This is a very difficult genus and one almost impossible to define satisfactorily from dried material.

Tribe *TROCHALOPODA*.

Fam. REDUVIIDAE.

Subfam. *ZELINAE*.

(= Harpactoridae Leth. and Sev.)

ZELUS Fabr.

Zelus Fabricius, 1803, Syst. Rhyng. p. 281.

An American genus of very closely allied forms which are much in need of structural revision. The form described below is almost certainly a recent importation—it has been sent to England by Mr Perkins only during the last few months—but as I cannot identify it with any described form, I have thought it better to add a name to my description; it is allied to *Z. janus*, Stål.

(1) *Zelus peregrinus*, sp. nov.

Belongs to subgenus *Diplacodus* Kirk. (= *Diplodus* Stål). Elongate.

Head, pronotum, sterna, scutellum, rostrum, antennae and legs luteous, more or less pallid. Postocular part of head above black except a median longitudinal stripe[1]. Anterior lobe of pronotum pinkish in the middle at the base, posterolateral spines brownish apically. Elytra sanguineous or luteo-sanguineous; clavus and corium (narrowly) internally, subfumate. Membrane bronzy fumate. Abdomen above sanguineous (at least in part), below more or less brownish. Connexivum immaculate. Antennae and legs not at all annulate, sometimes obscurely fumate in part, especially the former apically. Covered with curly pale yellow pubescence; head, pronotum and legs (at least laterally) thickly pilose.

Head and pronotum subequal in length, together at least one-seventh longer than first segment of antennae; postocular part of head one-fourth longer than part between this and antennae. Head across eyes slightly wider than the anterior margin of pronotum. Ocelli situated on a part of head very slightly more elevated than the rest. Rostrum reaching at least to anterior margin of anterior ambulacra, first segment scarcely reaching as far as anterior margin of eyes, second about $2\frac{2}{3}$ times as long as first, reaching to base of head. First segment of antennae three times as long as second, one-fourth longer than third. Anterior lobe of pronotum longitudinally sulculate near the base, sides rounded, anteriorly strongly acutely tuberculate, anterior margin slightly roundly emarginate. Posterior lobe (between the spines) nearly three times as wide as the anterior margin of pronotum ; obscurely tricarinate longitudinally anteriorly, densely but very finely punctured ; posterolateral angles short but acute ; base truncate in the middle. Scutellum bluntly rounded posteriorly, subtuberculate. Abdomen beneath strongly carinate longitudinally.

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[1] In one specimen this part is luteous except for an oblique roundly arched stripe just below the ocelli on each side. The species of *Zelus* are most variable in coloration.

♂. Antennae not dilated or thickened.

♀. Abdomen somewhat dilated[1]; antennae slender, posterior tibiae not tumid.

Long. (to apex of elytra which slightly overlap apex of abdomen) ♂ $13\frac{1}{7}$ mm., ♀ $14\frac{1}{6}$ mm. ; lat. pron. ♂ 3 mm., ♀ $3\frac{4}{7}$ mm. ; lat. max. abd. ♂ $2\frac{7}{10}$ mm., ♀ $4\frac{1}{9}$ mm.

HAB. Oahu, Honolulu Mts. (May, 1900), Perkins. Three examples (two males, one female).

Subfam. *REDUVIINAE.*

(= Acanthaspidae Leth. and Sev.)

Acanthaspidae Leth. and Sev., Cat. gén. Hémipt. III. p. 95.

This, the typical division of the great family Reduviidæ, is represented by a single genus.

ALLOEOCRANUM Reuter.

Microcleptes Stål, 1866, Oefv. Vet. Akad. Förh. p. 240 (preocc.).

Microcleptes subg. *Alloeocranum* Reuter, 1881, Act. Soc. Sci. Fenn. XII. p. 332.

Two species are known, one from Northern India, the other insular.

(1) *Alloeocranum biannulipes*, M. and S.

Opsicoetus biannulipes Montrouzier and Signoret, 1861, Ann. Soc. Ent. France (4) I. p. 69.

Reduvius laniger Butler, 1876, Ann. Mag. Nat. Hist. (4) XVII. p. 411.

Plate IV. fig. 17.

HAB. Oahu, Waianae Mts. (April), Perkins, one example, almost certainly very recently accidentally imported ; also recorded from Viti Isles, New Caledonia, Philippines, Réunion, Rodriguez, Malacca [and Cuba (?)].

This species was determined by my friend Mr A. L. Montandon ; the genus has not been figured before.

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[1] The abdomen in each specimen was somewhat shrivelled, precluding description of the genital segments.

Subfam. *PLOIIARIINAE.*

(=Emesidae Leth. and Sev.)

Ploiariodes F. B. White.

Ploiariodes White, 1881, Ann. Mag. Nat. Hist. (5) VII. p. 58.

Ploiariola Reuter, 1888, Act. Soc. Sci. Fenn. XV. p. 711.

Ploiariodes differs from *Ploiariola* only by the unreflexed lateral margins of the pronotum; the tuberculate posterior margin of the pronotum (mentioned in the original description) is only a specific character.

The typical forms are confined to the Hawaiian group, but the genus as a whole is distributed over the palaearctic and nearctic Regions, Central America and Ceylon.

1. A prominent tubercle on the posterior margin of the pronotum in the middle; elytra whitish variegated with fusco-cinereous .... (*1*) *whitei.*
1*a*. Pronotal tubercle absent .... 2.
2. Elytra whitish variegated with dark grey; a more or less bright crimson spot or streak on the costal margin of the membrane .... (*2*) *rubromaculata.*
2*a*. Elytra whitish variegated with fuscous; no reddish spot .... (*3*) *pulchra.*

(1) *Ploiariodes whitei* F. B. White.

Ploiariodes whitei (Blackb. MS.) White, 1881, Ann. Mag. Nat. Hist. (5) VII. p. 59.

HAB. Hawaii, Kilauea (July, August, September), Perkins; Kona, 3500 ft. (June), Perkins.—Oahu, N. W. Koolau (August), Perkins.—Mauna Loa, 4500 ft., on dead branches of trees (Blackburn).—Maui, Jao Valley, Perkins. I have examined 22 examples.

(2) *Ploiariodes rubromaculata* Blackb.

Ploiariodes rubromaculata Blackb., 1889, Proc. Linn. Soc. N. S. W. (2) III. p. 349.

HAB. Hawaii, Kona, 3000—3500 ft. (June, October), Perkins, "beaten from a species of *Ohia* at an elevation of about 4000 feet on Mauna Loa" (Blackburn); Kilauea (August), Perkins.—Maui, Haleakala, 5000 ft. (April, May, October), Perkins. —Molokai, 3000 ft. (September), Perkins; Olaa (December), Perkins.—Oahu, Kaala Mts., 2000 ft. (April), Perkins; Waianae Mts., 2000 ft., beaten from dead *Koa* bough (April), Perkins. I have examined 10 specimens collected by Mr Perkins, and Mr Blackburn has kindly lent me his type for comparison.

(3) *Ploiariodes pulchra* Blackburn.

Ploiariodes pulchra Blackb., 1889, Proc. Linn. Soc. N. S. W. (2) III. p. 350.

I have not seen the type, nor has Mr Perkins collected a specimen answering to the description.

HAB. Oahu (Blackburn).

LUTEVA Dohrn.

Luteva Dohrn, 1860, Linn. Ent. XIV. pp. 213 & 242.

Occurs in North and South America, Philippine Isles, Celebes, Sumatra, and N. Britain.

(1) *Luteva insolida* White.

Luteva insolida White, 1878, Ann. Mag. Nat. Hist. (5) I. p. 113.

HAB. Hawaii, Olaa (September), Perkins. One example.

NESIDIOLESTES, gen. nov.

Allied to *Ploiariodes* and *Luteva*, distinguished by the short anterior tarsi, and the position of the somewhat elongate acute spine of the anterior femur, which is situated near the base of the latter; forming in some ways a link between the divisions Leistarcharia Stål and Stenolemaria Kirk. (= Ploiariaria Stål).

Posterior lobe of head convex, strongly narrowed behind, rounded in front; eyes small, projecting somewhat beyond lateral margins of head. Antennae long, first segment about six times as long as the head, second segment slightly longer than the first. First segment of rostrum short, not reaching to base of anterior lobe of head, second reaching to base of anterior lobe. Pronotum anteriorly tuberculate on each side, apically wider than any part of the head, medianly constricted. Meso- and metanotum each with a blunt spine. Anterior coxae nearly twice as long as head, femora slightly curved, a little longer than coxae; tibiae and tarsi together equal to femora, tibiae about 4½ to 5 times as long as tarsi, femora with fine hair-like spines beneath, along their entire length, also several short sharp black spines at intervals and a longer one close to the base. [Intermediate and posterior legs (except coxae) missing, but from analogy the posterior femora probably extend far beyond apex of abdomen.] Abdomen much longer than head and thorax together, gradually widening posteriorly; connexivum vertical.

Nesidiolestes selium, sp. nov.

♀. Apterous. Pale testaceous, irregularly striped and variegated with black. Eyes black. Antennae pallid, multiannulate with black; rostrum, pro- and mesosternum and coxae pallid; anterior femora and tibiae pallid triannulate with black. A pale yellow tubercle in the middle of the lateral margin of each of the second to seventh abdominal segments beneath. Apical margin of ventral sixth sinuate.

Long. corp. 9½ mm.

HAB. Hawaii, Olaa (December), Perkins. Only one specimen.

Subfam. *NABINAE.*

REDUVIOLUS Kirby.

Reduviolus Kirby, 1837, Richardson, Faun. Bor. Amer. IV. p. 279; Kirkaldy, 1900, Entomologist, p. 242; Kirkaldy, 1901, Wien. Ent. Zeit. p. 219.

Aptus (Hahn, 1831, nec descr.) Stål, 1873, Svenska Vetensk. Akad. Handl. XI. no. 2 [Enum. Hem. III.], p. 112.

Nabis Leth. and Sev., Cat. gén. Hémipt. III. p. 207 (nec Latr. typ.).

A genus of world-wide distribution, which has established itself firmly in the Hawaiian Isles. Its origin there is doubtful; *R. blackburni* belongs to a cosmopolitan section of which the type is *R. ferus*, Linné; *R. subrufus*, *rubritinctus* and *morai* have some little likeness with certain American forms, perhaps more apparent than real; the others have no very near relatives. The genus is an exceedingly difficult one for specific differentiation, owing to the variability of colour, general form, and even to a certain degree of the male genital 'hooks' (as first pointed out by Reuter, who has devoted considerable attention to the subfamily). Moreover, pterygopolymorphism is here rampant, and the modification or absence of the membrane and the change in shape of the pronotum under such circumstances render the accurate discrimination of the species very difficult. Some considerable time elapsed before the palaearctic forms were adjusted and variability is even more accentuated in the Hawaiian forms. Dr Montandon's fine collection of these bugs, however, which I have had the good fortune to acquire, has aided me in gaining some idea as to possible limits of specific variation.

Reduviolus has been recorded from the Mayencian of Croatia and Prussian Amber of the Ligurian Horizon, also from the Tortonian of Baden.

It is very difficult to arrange an analytical table of these forms, but the following may serve in the meantime:

1. Ocelli distinct, elytra well developed .... 2.
1*a*. Ocelli absent, elytra short .... (*8*) *lusciosus*, White.
2. First segment of antennae incrassate .... (*7*) *rubritinctus*, Blackb.

2a.	Antennae slender	.
3.	Elytra coriaceous, membranal nervures stout, usually with numerous very short branches	4.
3a.	Elytra submembranous, subiridescent, nervures slender, not or scarcely branching	6.
4.	Small, slender, cinereous elytra	(*3*) *blackburni*, White.
4a.	Small, stout, purplish-brown elytra	(*4*) *morai* Kirk.
4b.	Large, elongate	5.
5.	Corium yellow, apically dark reddish	(*5*) *sharpianus* Kirk.
5a.	Corium reddish or cinereous	(*6*) *subrufus*, White.
6.	Elytra stouter, reddish or pale reddish cinereous	(*2*) *tarai* Kirk.
6a.	Elytra very thin, pale greenish or yellowish testaceous	(*1*) *innotatus*, White.

(1) *Reduviolus innotatus*, F. B. White.

Nabis innotatus F. B. White, 1877, Ann. Mag. Nat. Hist. (4) xx. p. 112.

Plate V. fig. 32.

Recognized by the pale silvery-green colour, (usually) immaculate scutellum, and thin, iridescent elytra.

Hab. Hawaii, Kona (common), 2000—6000 ft. (July to September), Kilauea (August).—Oahu, Waianae Mts. (April). I have seen 25 examples.

(2) *Reduviolus tarai*, sp. nov.

Plate V. fig. 40.

Closely allied to *R. innotatus* but ruddy-tinged, the elytra stouter and with the nervures more pronounced and the male hook is slightly different.

Elongate, pale sanguineotestaceous (sanguineous colour more pronounced on head, thorax and elytral nervures). Elytra immaculate, membrane hyaline subiridescent, nervures pale cinereous. Scutellum immaculate. Under side pale flavo-testaceous, sterna more or less tinged with sanguineous. Head as long as pronotum, nearly twice as long as width of anterior margin of pronotum, base $2\frac{3}{8}$ wider than anterior margin. Width across eyes slightly more than anterior margin. First segment of anterior third greater than head, second three-eighths greater than 1st, slightly greater than third, which is one-half greater than fourth.

Posterior femora slender, anterior femora comparatively slender. Central area of membrane with two longitudinal streaks, no offshoots.

Long. $7\frac{1}{4}$—9 mm.; lat. $1\frac{1}{4}$—$2\frac{1}{2}$ mm.

Hab. Hawaii, Kona, 5000 ft. (June); Lanai, 2000 ft. (February); Molokai, 3000 ft. (June).—Oahu, Waialua, Koolau range (March).—Kauai, Halemanu (May). I have seen eight specimens.

Varies a little in degree of sanguineousness.

(3) *Reduviolus blackburni*, White.

Nabis blackburni White, 1878, Ann. Mag. Nat. Hist. (5) I. p. 373.

Closely allied to *R. ferus* (Linn.)—very variable, but almost always pale brownish cinereous in ground colour.

"Common amongst long grass in damp hollows on the higher mountains" (White).

HAB. Hawaii, Olaa, 5000 ft. (October, November); Kilauea (August); Kona, 1500—5000 ft. (June—September).—Maui, Haleakala, 4000—5000 ft. (October).—Lanai, Halepaakai, 2000 ft. (February, July, September).—Molokai Mts., 3000 ft. (September).—Oahu, south-east coast (January); Honolulu, 2000—2500 ft. (February, August); Waianae Mts. (April); Kaala Mts. (August).—Kauai, Koholuamano, 4000 ft. (April); Waimea Mts. (May, June). Laysan (Bremen Museum). I have examined 47 specimens.

This species is remarkable for extending its range to the lonely reef of Laysan, well beyond Kauai.

(4) *Reduviolus morai*, sp. nov.

Plate V. fig. 39.

Belongs to the typical subgenus by the structure of the wings and femora, but has much the appearance of a *Hoplistoscelis*.

Robust, not elongate, pilose (elytra very minutely so). Dark sanguineous; antennae dilute, second segment obscurely annulate at the apex, fourth more or less fumate. Head marked with brownish-grey as in most of the other species of the subgenus. Large medio-anterior spot and the lateral margins narrowly, of scutellum, black. Head beneath and sterna black. Elytra pale pinkish-brown, spotted with brown, membrane slightly fumate, marked with ash-brown. Wings dark fumate. Femora more or less obscurely spotted with brownish-black, anterior pair more or less black beneath. Apex of tarsal segments and the claws blackish. Abdomen above more or less blackish at sutures, upper part of each connexival segment black. Abdomen beneath sanguineous. Head slightly widened behind the eyes. Pronotum and elytra punctured, the former minutely. Elytral nervures stout. Apex of corium sinuate. Posterior femora slender, more or less curved. Rostrum reaching to middle of mesosternum. Head as long as the second segment of antennae, which is three-fifths longer than the first, slightly longer than the third, which is slightly longer than the fourth. Base of pronotum $2\frac{1}{2}$ times as wide as the collar.

♀. Abdomen laterally rounded, extending beyond lateral margins of elytra.

Long. $7\frac{1}{2}$—$8\frac{1}{4}$ mm.; lat. $2\frac{1}{8}$—$2\frac{1}{2}$ mm.

HAB. Maui, Haleakala, 5000 ft. (October).—Lanai, 2000 ft. (June); Halepaakai (July).—Molokai (July).—Oahu, Waialua, Koolau range, 2000 ft. (April).—Kauai, 4000 ft. (July, August). I have seen 14 examples of this somewhat variable species.

The elytra are sometimes pale cinereous, pronotum posteriorly much marked with brown. Whole under surface dark brown. Legs darker and femora distinctly annulate with black and brown.

(5) *Reduviolus sharpianus*, sp. nov.

Plate V. fig. 36.

Tylus, base of head, pronotum, apical third of elytra, scutellum, genital segments, abdomen beneath etc. sanguineous. Head, lateral margin of pronotum, central line along scutellum, abdomen above, sterna (in part) black. Antennae, rostrum, and legs pallid (more or less sanguineous) flavous, apex of femora and base of tibiae sanguineous, apex of tibiae and of each tarsal segment blackish. Connexivum sanguineous spotted with black. Membrane cinereohyaline; nervures pale lilac-brownish. In structure and size similar to *R. rubritinctus* (and also often in colour and pattern), distinguished by the slender basal segment of antennae.

HAB. Kauai, High Plateau (August), 4000 ft. (July). I have seen five examples.

(6) *Reduviolus subrufus*, White.

Nabis subrufus White, 1877, Ann. Mag. Nat. Hist. (4) XX. p. 112.
N. oscillans Blackburn, 1888, Proc. Linn. Soc. N. S. W. (2) III. p. 352.
N. koelensis Blackburn, loc. cit.

Plate V. figs. 37 & 38.

I have unfortunately not been able to see the type, and the species remains to me somewhat enigmatical. I have before me some 59 examples, varying very greatly among themselves both in colour and structure, which I cannot separate satisfactorily owing to linking forms. Blackburn (who has kindly lent me the mutilated type of his species) has separated *oscillans* from *subrufus* by its different colour and by the lobes of the pronotum being "considerably and regularly contracted towards the front," but neither of these points appears more than varietal. *R. koelensis* also (judging from the sadly mutilated type) is only a somewhat undeveloped form of *subrufus*. The difference in the neuration of the membrane seems to me also only variational.

HAB. Hawaii, 4000 ft. (July, August); Kaumanu, 2000 ft. (January); Kilauea, Hilo Road (June to August); above Hilo (December); Olaa (November).—Maui, Haleakala, 4000 to 5000 ft. (May, October); Jao Valley (March).—Molokai (June).—Oahu, Waialua, Koolau range, 2000 ft. (April); Kauoloa gulch (April); Honolulu, 2000 ft. (October); Pipturus (November). Its headquarters are in Hawaii.

(7) *Reduviolus rubritinctus*, Blackburn.

Nabis rubritinctus Blackburn, 1889, Proc. Linn. Soc. N. S. W. (2) III. p. 351.

Plate V. fig. 33.

Distinguished in both sexes by the incrassate basal segment of the antennae. Very variable in colour and pattern.

Hab. Honolulu, 2000 to 3000 ft. (June, December); near Waialua, Koolau range; N. Koolau (August); Halemano, 2000 ft. (December). I have seen 15 examples.

(8) *Reduviolus lusciosus*, White.

Nabis (?) *lusciosus* White, 1877, Ann. Mag. Nat. Hist. (4) XX. p. 112.

N. (?) *curtipennis* Blackburn, 1889, Proc. Linn. Soc. N. S. W. (2) III. p. 353.

N. lasciosus Leth. and Sev., Cat. gén. Hémipt. III. p. 210.

Plate V. figs. 34, 35.

In a series of 55 examples, I cannot separate *R. lusciosus* from *curtipennis*. A specimen of the former, donated probably by White, is in the British Museum, and the type of the latter was kindly lent me by its describer. Between the two forms I have before me every gradation, the different variations occurring in both sexes; there is also considerable diversity in the reduction of the elytra, one specimen being almost apterous. The male hooks vary a little, but not more I think than occurs in *R. ferus* (Linné). *R. lusciosus* is remarkable for the fact that the ocelli are absent, even in the most developed forms. Whether it is the brachypterous form of one of the other macropterous species, I am not able to decide definitely, but I think not.

Hab. Hawaii, Olaa (September, November); Kona, 2000 ft. (July, September); Kilauea, 4000 ft.; Hilo Road (August); Kaumana, 2000 ft. (January).—Maui, Jao Valley (March); Haleakala, 4000 to 5000 ft. (March, April, October); West Maui, 4000 ft. (April).—Molokai, 4000 to 4500 ft. (June, July).—Oahu, Honolulu Mts. (January, February, August, September, November); Waianae, 2000 ft. (February); Pipturus, back of Tantalus (December).

Fam. GERRIDAE.

Microvelia, Westwood.

Microvelia Westwood, 1834, Ann. Soc. Ent. France III. p. 647; Kirkaldy, 1901, Entomologist, p. 218.

Hydroëssa Burmeister, 1835, Handb. Entom. II. p. 213; Kirkaldy, 1899, Entom. p. 113.

? *Veliomorpha* de Carlini, 1895, Ann. Mus. Genov. XXXV. p. 120.

A cosmopolitan genus, the species fond of islands.

(1) *Microvelia vagans*, F. B. White.

Microvelia vagans F. B. White, 1878, Ann. Mag. Nat. Hist. (5) I. p. 374.

This beautiful little species may be distinguished by the antennal proportions, viz.: first segment about one-third longer than the second, which is about one-seventh shorter than the third, fourth twice as long as second. The posterior tibiae are destitute of long bristly hairs, the head is immaculate (except for the silvery lateral pubescence), the pronotum not carinate and the posterior femora unarmed.

var. One apterous specimen has the head very widely fulvous.

I have seen the type (Perth Museum); and eight other examples (including apterous forms).

HAB. "Not uncommon on running water" (White).—Oahu, N. W. Koolau range (May, July); Lanai, 2000 ft. (December), Perkins.

HALOBATES Eschscholtz.

Halobates Eschsch., 1823, Dorpat Naturw., Abh. I. p. 163 (Entomogr. I. p. 106); F. B. White, 1883, Voy. Challenger, Hemipt. p. 23.

A cosmopolitan pelagic genus. It is recorded from the Oligocene, but this almost certainly refers to *Metrobates* or allied freshwater genus.

(1) *Halobates sericeus*, Eschsch.

Halobates sericeus Eschsch., 1823, Dorpat Naturw., Abh. I. p. 165; F. B. White, 1883, Voy. Challenger, Hemipt. p. 47, Pl. I. fig. 7.

HAB. Oahu, near Honolulu (Mus. Bremen); distributed all over Pacific Ocean from Japan to San Francisco and from Cape Horn to the Hawaiian Isles, but less abundant on the South Pacific; North Atlantic Ocean at Cape de Verde. March, April, June, July, October (probably all the year round). Not taken by Mr Perkins. [Recorded also from Madagascar and Cape of Good Hope, but possibly in error.]

[(2) *H. germanus* White, 1883, Voy. Challenger, Hemipt. p. 50, Pl. I. fig. 6, will probably also be found off the coasts of our group.]

Fam. PYRRHOCORIDAE

(= Lygaeidae + Pyrrhocoridae auctt.)

Subfam. *PYRRHOCORINAE.*

ASTEMMA Lep. Serv.

Astemma Lepeletier St Fargeau and Serville, 1825, Enc. Méth. x. p. 323.

Dysdercus Am. Serv., 1843, Hémipt. p. 272.

Another almost cosmopolitan genus, not yet however recorded from New Zealand or from the Northern parts of the Palaearctic Region. Two species are recorded by Scudder from the Oligocene of Colorado.

(1) *Astemma peruvianus*, Guérin.

Lygaeus peruvianus Guér., 1838, Voy. Coquille, Ins. p. 178 [1831, Pl. XII. fig. 16].

HAB. Oahu, Honolulu (Stål); "I have three specimens...of what I believe to be this," obtained singly by sweeping ferns at a considerable elevation on the Waianae Mountains, and Haleakala, Maui (Blackburn, Proc. Linn. Soc. N. S. W. (2) III. p. 344). Mr Perkins has not collected it and it is unknown to me. It has been recorded also from California, Puna, and Guayaquil. Distant (1883, Biol. Centr. Amer., Rhynch. I. p. 233) mentions "*D. ferrugineus* from Honolulu...probably a MS. name of the late Dr Stål."

Subfam. *PACHYMERINAE.*

(=Aphaninae or Rhyparochrominae auctt.)

ORTHOEA Dallas.

Orthoea Dallas, 1852, List Hem. II. p. 532.

Pamera Leth. and Sev., 1894, Cat. gén. Hémipt. II. p. 191 (nec Say typ.).

Another almost cosmopolitan genus, which (or one very closely allied) occurs not infrequently in Prussian amber and various other early Kainozoic formations; also a close relation from the English Lower Lias.

(1) *Orthoea nigriceps*, Dallas.

Rhyparochromus nigriceps Dallas, 1852, List Hem. II. p. 577.

Pamera nigriceps Stål, 1874, Svenska Vetensk. Akad. Handl. XII. no. 1, p. 152; F. B. White, 1878, Ann. Mag. Nat. Hist. (5) I. p. 369.

HAB. "A common species on low plants and under stones etc., but not occurring below about 1000 ft. above sea-level" (White).—Hawaii, Kona, 2000 to 4000 ft. (August).—Maui, Haleakala, 4000 ft. (October).—Molokai Mts. 3000 ft. (June).—Oahu, Honolulu (Stål); Mts. behind Honolulu, 2000 ft. (April); N. Koolau (July, August); Waianae Mts., leeside, 2000 to 3000 ft. (February).—Kauai, 4000 ft. (October). I have examined from these 20 examples, mostly dark-coloured.

RECLADA White.

Reclada F. B. White, 1878, Ann. Mag. Nat. Hist. (5) I. p. 370.

This genus is quite unknown to me.

(1) *Reclada moesta*, F. B. White.

Reclada moesta White, 1878, loc. cit.

Confined to the Hawaiian Isles.

CLERADA Signoret.

Clerada Sign., 1863, Maillard's Réunion, ed. 2, vol. II. Annexe J. p. 28.

This genus is unknown to me, and as the description is in a somewhat inaccessible work, it is reproduced here.

"Genre remarquable par la position qu'occupent les ocelles au-dessous des yeux de chaque côté de la tête, et non sur le vertex comme dans la plupart des Lygaeites. Ce genre viendrait, à cause des divers caractères que nous allons énoncer, se ranger après les Rhyparochromides dont il a le facies, car il ressemble à première vue à un *Platygaster*, et avant les Anthocorides. Tête triangulaire en avant, avec un faible tubercule pour l'insertion des antennes. Troisième article des antennes le plus petit, premier article plus court que la tête. Rostre de 4 articles, le troisième très long, le quatrième le plus court. Yeux moyens. Ocelles très apparents et logès au-dessous de ceux-ci et de chaque côté du col, qui est aussi gros que la tête au-delà des yeux. Membrane avec 4 nervures plus ou moins flexueuses et libres. Pattes grêles."

(1) *Clerada apicicornis*, Signoret.

Clerada apicicornis Sign., 1863, Maillard's Réunion, ed. 2, vol. II. Annexe J. p. 28; Pl. XX. fig. 8.

"Brun foncé avec le rostre et les pattes jaune-testacé; le dernier article des antennes blanc-jaunâtre. Pour la couleur, la taille et l'aspect en général, cette espèce ressemble beaucoup au *Platygaster ferrugineus* Linné, mais il s'en éloigne et par le caractère important des ocelles et par les cuisses antérieures grêles. Tête plus longue que large, très triangulaire en avant, aussi large postérieurement qu'au-delà des yeux. Antennes noires sauf le dernier article, et les articulations pâles. Prothorax trapézoïde, le côté le plus étroit en avant, bords latéraux légèrement relevés et sinueux. Écusson aplati, légèrement caréné à l'extrémité, qui est très acuminée. Élytres brunes avec une large bande latérale testacée. Abdomen caréné. Pattes jaunes."

HAB. "Taken by beating dead branches of a species of palm in mountain forests" (F. B. White). Also obtained from Réunion (Signoret); Celebes, Bengal, Cuba, St Thomas, Venezuela, etc.

Subfam. *CYMINAE.*

SEPHORA gen. nov.

Very like *Cymodema* Spinola, but the antennae have a much longer second segment. From *Arphnus* Stål it differs by the tylus not exceeding the bucculae. Also very like *Cymus* Hahn, but more elongate and the elytra more parallel-sided, the eyes remote from the pronotum, rostrum much shorter, etc.

Elongate, subparallel-sided; closely punctured; vertex a little flatter than in *Cymus* and the eyes distinctly not nearly touching the anterior margin of the pronotum. Rostrum reaching to the middle of the mesosternum, first segment reaching to the middle of the prosternum. Anterior lobe of pronotum scarcely carinate. Anterior femora a little more swollen medianly than in *Cymus*.

♂. Abdominal segments beneath, parallel; abdomen apically rounded.

♀. Abdominal segments: fourth segment slightly angularly-emarginate, fifth and sixth apically acutangularly emarginate; abdomen apically acuminate. (Segments as in *Cymus* but proportions slightly different.) Type *S. criniger*, White.

(1) *Sephora criniger*, F. B. White.

Cymus criniger F. B. White, 1881, Ann. Mag. Nat. Hist. (5) IV. p. 57.

Plate V. fig. 45.

The head, the base of the anterior lobe of the pronotum (widely), the anterior part of the scutellum, etc., are black (as described by White), but these parts are so densely and closely covered by the pallid pilosity that they appear—in fresh specimens—to be pale flavescent.

In one of the specimens (from Lanai) the left antenna is deformed, consisting of two stout, soldered, segments, which are twisted subobliquely. In another specimen, the second segment of the antennae is distinctly longer on the left side than on the right; antennal irregularities are not uncommon in this family[1]. The average antennal

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[1] J. W. Douglas has discussed this at some length in the Ent. Monthl. Mag. II. p. 270, III. p. 200, and XIII. p. 189. Douglas seems to believe that these malformations are due to reproduction of missing segments in the imaginal instar, destroyed by predaceous Coleoptera, etc.; but I believe that, in most cases at least, they are due to damage suffered in the ultimate or penultimate nymph-instars. In the same Magazine, F. B. White (XIV. p. 93) and F. Buchan-Hepburn (XIV. p. 256) record similar abnormalities in Cimicidae, Miridae, etc., while scattered details have been noted elsewhere from time to time.

proportions are: second segment about twice the first and about one-half longer than the third, which is a trifle longer than the incrassate fourth.

Hab. "Very rare. Under stones on Haleakala, Mauai, at an elevation of 5000 ft." (White).—Lanai, 2000—3000 ft. (January, February), Perkins.—Molokai Mts. 3000—4500 ft. (May, June, August), Perkins. I have examined 22 specimens.

(2) *Sephora calvus*, White.

Cymus calvus White, 1881, Ann. Mag. Nat. Hist. (5) IV. p. 56.

This species, which I do not know, must be close to *S. criniger*. White mentions that a specimen of this, too, has one of the antennae malformed.

Hab. Oahu. "Very rare. Under stones on the mountains near Honolulu, at an elevation of about 2000 ft." (White).

Subfam. *ASTACOPINAE.*

(= Lygaeinae auctt.)

Nysius Dallas.

Nysius Dallas, List Hem. II. p. 331.

A remarkable cosmopolitan genus—probably of old geologic origin[1]—of some seventy-five to eighty species, of which nearly one-half are exclusively (so far) insular, five having been recorded from New Zealand and Tahiti. White and Blackburn have described 13 species from our fauna and Mr Perkins has collected a fair number of specimens, many of which appear to represent new species. Unfortunately I have not been able to see a single type except *N. coenulosus* Stål, so that I have, for the present, omitted consideration of these variable and inconspicuous forms. I merely describe three which appear to me to be indubitably new.

(1) *Nysius ochriasis*, sp. nov.

Pale flavous; apical half of fourth rostral segment, sterna medianly, femoral maculations, etc., black; eyes and pronotal punctures reddish-brown; elytra pale cinereo-flavous, semihyaline, nervures pale flavescent; membrane yellowish-hyaline. Sterna strongly punctured with reddish-brown; stink orifices pale luteo-testaceous. Comparatively superficially and sparsely punctured, keels of pronotum and scutellum impunctate; head and pronotum pubescent, except tylus and pronotal callosities. Bucculae nearly touching base of head, basal half depressed; first segment of rostrum a trifle longer than

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[1] Five species are recorded by Scudder from the Oligocene of Colorado.

bucculae, second reaching to apical margin of mesosternum, third to apex of intermediate coxae, fourth to apex of posterior coxae. Eyes prominent, not touching pronotum. First segment of antennae reaching a little beyond apex of head, half the length of the second which is subequal to the third and to the fourth. Mesosternum sulculate, scutellar carina scarcely callose. Eyes and head a little wider than pronotal apical margin; base of pronotum truncate, three-fourths wider than apical margin, which is about as wide as the length of the pronotum. Vertex three times as wide as one eye; pronotum two-fifths longer than the head.

♂. Sixth and seventh abdominal sternites slightly roundly emarginate, eighth rounded posteriorly.

♀. Sixth and seventh angularly emarginate.

Long. $4\frac{1}{2}$—$4\frac{3}{4}$ mm.; lat. $\frac{7}{12}$ mm.

HAB. Hawaii, Kilauea (August); Hualalai, 8000 ft. (August). I have seen eight examples of this very distinct species.

(2) *Nysius saundersianus*, sp. nov.

Head smooth, shining, black (except sublaterally beneath); an interrupted stripe narrowing from vertex to clypeus, the pedicillate part of the eyes, etc., pale flavous. First segment of antennae pallid, more or less black medianly; second black basally and subapically, pallid apically and subbasally; third and fourth more or less fumate or black, the former clothed with pallid hairs. Pronotum, scutellum and elytra pale cinereo-flavous, the last subhyaline; the first sparingly brunneopunctate except on the callosities and on the subcallose laevigate basal margin and also along the medio-longitudinal line. Scutellum posteriorly black; apical margin of corium irregularly nebulose-fumate. Prosternum and propleura pallid, except a black spot on the latter; the former more or less narrowly medianly black except laterobasally. Orifices and ambulacra pallid. Legs pallid, femora sparingly punctured with brown. Connexivum spotted with black beneath. Tibiae sometimes banded brown and pallid. Bucculae as in *N. ochriasis*, but the elevated part a little shorter. Rostrum not reaching to apex of intermediate coxae. Head with eyes one-third broader than long. Vertex slightly narrower than the two eyes together. Second segment of antennae $2\frac{1}{2}$ times as long as the first, a trifle longer than the third, which is subequal to the fourth. Pronotum not carinate longitudinally, twice as wide at base as at apex, mediolaterally subreflexed, distinctly roundly emarginate apically, base distinctly rounded, lateral margins sinuate. Pronotum and scutellum sparingly punctured, pleura more or less punctured. Lateral margins of elytra not, or only very slightly, roundly arched.

♂. Abdominal sternites blackish-brown, laterally more or less pallid, base of posterior femora and tibiae black-brown. Black encroaches often on to the elytra. Seventh sternite apically straight.

♀. Abdominal sternites pallid except black at the base; in the middle and at the sides more or less spotted with brown. Sixth and seventh sternites angularly emarginate.

Long. $5\frac{1}{4}$—$6\frac{2}{5}$ mm. (to apex of abdomen); $6\frac{2}{5}$—$7\frac{1}{5}$ mm. (to apex of elytra); lat. 2—$2\frac{1}{2}$ mm.

Hab. Hawaii, Kona, 2000 ft. (November); Kilauea (July, August).—Lanai, 2000 ft. (January).—Molokai, 4500 ft. (September). I have examined 11 specimens, collected by Mr Perkins.

I have much pleasure in dedicating this to my kind friend, Mr Edward Saunders.

(3) *Nysius kamehameha*, sp. nov.

Very similar to *N. delectus*, White, but larger, hairier, more densely punctured, and more so on pronotum.

Head, laevigate (not callose), part of pronotum, central carina, pronotal punctures, base and posterolateral angles, scutellum, claval commissure, apical margin of corium, antennae (except pallid base of first segment), eyes, etc., blackish. [Some punctures only narrowly encircled with blackish.] Head, sterna, pronotum, scutellum and elytra thickly covered with yellow hairs. Head immaculate. Pronotum pallid greenish-cinereous (except as above). Basal half of rostrum pallid, apical half black. Apex of second and of third segments of antennae very narrowly rufous. Elytra subhyaline, pale (greenish-) cinereous. Beneath blackish; ambulacra, basal margin of meso- and metasternum pallid; abdominal sternites sanguineous, basally more or less blackish. Legs pallid, femora striped and thickly spotted with black. Third tarsal segments and apex of tibiae blackish. Pronotum strongly pit-punctured. Elytra somewhat superficially transversely rugulose (not punctured). Second segment of antennae $2\frac{2}{5}$ longer than the first and one-fourth longer than the third. Head one-fourth wider across the eyes than long, a little shorter than pronotum. Vertex two-sevenths wider than the eyes together. Pronotum nearly twice as wide at base as at apex. Rostrum extending as far as or a little beyond the intermediate coxae. Elytra slightly rounded laterally.

♀. Sixth and seventh abdominal sternites apically angularly emarginate.

Long. $7\frac{1}{8}$ mm.; lat. $2\frac{1}{8}$ mm.

Hab. Hawaii, Hualalai, 5000 ft. (August), Perkins.

Subfam. *METRARGINAE* (nov.).

Allied to subfam. Cyminae by the dilated costal area, which is very much wider than the abdomen; by the position of the spiracles, etc., but distinguished from it (and from all other Pyrrhocoridae known to me) by the hamus of the alar areole being continuous, extending from the vena subtensa upwards to the upper vein.

Ocelli present. Membrane without basal cells; with four veins, the interior vein furcate. Femora scarcely incrassate, not spinose. Abdominal segments all attaining the lateral margins of the body, ventrally. Last three visible spiracles (on fifth, sixth, and seventh segments) situated ventrally near the lateral margins of the abdomen.

METRARGA F. B. White.

Metrarga F. B. White, 1878, Ann. Mag. Nat. Hist. (5) I. p. 370.

Confined to the Hawaiian Isles.

Lightly pubescent. More or less elongate-ovate; above plane, somewhat convex beneath. Head subquadrilateral, anteriorly produced; and compressed, strongly convexly elevate. Tylus prominent, arched exteriorly in front of the juga. Vertex destitute of a sulcus in front of the ocelli, which are a little nearer to the eyes than to one another and close to the base of the head. Eyes small, oblique, not touching pronotum. Antenniferous tubercles exteriorly strongly spined. First segment of antennae always extending well beyond apex of head. Rostrum reaching at least to posterior coxae, first segment reaching about to the base of head. Pronotum punctured, transverse, lateral margins carinately subacute, sinuate; latero-posterior angles callosely prominent; base subtruncate. Scutellum punctured, a little longer than wide; tricarinate, radiating from the centre (as in *Nysius*). Sterna punctured, abdomen smooth. Connexivum subvertical. Elytra minutely, not strongly, punctured, *commissura clavi* shorter than the scutellum; costal margin more or less rotundate, explanate, subreflexed, extending laterally well beyond the abdomen; apical margin of corium strongly sinuate, exterior angle acutely produced, not reaching beyond apex of abdomen. Legs moderate; coxae not remote; femora subequal, scarcely incrassate, not spinose. Stink orifices large, auriculate.

♂. Abdominal segments beneath subparallel, straight, the sixth and seventh apically more or less roundly emarginate, sometimes almost straight.

♀. Abdominal segments beneath: second to fifth subparallel, straight, sixth to seventh angularly (sometimes profoundly so) emarginate.

1. Pronotum toothed anterolaterally ....(*1*) *nuda* White.
1*a*. Pronotum rounded anterolaterally ....2.
2. Membrane large, extending considerably beyond apex of corium, nervures distinct; posterior femora stout ....(*3*) *contracta* Blackb.
2*a*. Membrane small, scarcely extending beyond apex of corium, nervures indistinct; posterior femora slight ....(*4*) *villosa* White.

(1) *Metrarga nuda*, White.

Metrarga nuda F. B. White, 1878, Ann. Mag. Nat. Hist. (5) I. p. 371.
=? *M. obscura* Blackburn, 1888, Proc. Linn. Soc. N. S. W. (2) III. p. 347.

Plate V. figs. 41 & 42.

Varying from brownish cinereous to pale reddish-brown or dark red-brown; mottled with testaceous or flavotestaceous. Head, a smooth sinuate transverse stripe on pronotum, etc. black. Legs blackish-brown, pallidly annulate. Posterior part of scutellum often pallid. Membrane dilute fumate, spotted with whitish. Bucculae reaching almost to base of head. Second segment of antennae one-sixth longer than the third which is one-fifth longer than the fourth, second three-quarters longer than the first. Anterolateral angles of pronotum with a distinct spine. Posterior femora not reaching to apex of abdomen.

♂. Rostrum reaching to middle of third abdominal segment; sixth and seventh segments beneath slightly roundly emarginate.

♀. Rostrum passing slightly beyond posterior coxae; seventh abdominal segment beneath deeply angularly emarginate.

Long. $6\frac{1}{2}$—9 mm.; lat. 4—$4\frac{3}{4}$ mm.

Hab. Hawaii, Kona, 2000 to 4000 ft. (July to September and November); Kuanui ridge (November); Kilauea, 4000 ft. (August); Kaumana, Hilo, 2000 ft. (January); Olaa (June, September, November, December).—Maui, Waimea Mts., Jao Valley (March).—Oahu, Kaala, 3000 ft. (January), Perkins, Honolulu; Pipturus, back of Tantalus (August).

This is a species very variable in colour, within the limits of browns. Its headquarters seem to be in Hawaii, and it is the least rare of the species.

(2) *Metrarga obscura*, Blackburn.

Metrarga obscura Blackburn, 1888, Proc. Linn. Soc. N. S. W. (2) III. p. 347.

According to Blackburn, this differs—beyond unimportant colour characters—by the seventh sternite being much less emarginate apically in the female.

Hab. Hawaii, and vegetable refuse on Mauna Loa, 4000 ft. (Blackburn).

(3) *Metrarga contracta*, Blackburn.

Metrarga contracta Blackburn, 1888, Proc. Linn. Soc. N. S. W. (2) III. p. 347.

Plate V. fig. 43.

Head, apical fourth of pronotum, the pronotal laevigation, anterior part of scutellum and the abdomen above, black, thickly covered with yellowish-golden hair. Eyes reddish-brown. Ocelli pale amber or reddish. Head beneath and sterna black with yellow hairs, ambulacra and the posterior margin of metasternum more or less pallid. Rostrum reddish-brown. First three segments of antennae pale reddish-brown, fourth black. Pronotum and scutellum (except as above) pale olivaceous or brownish, punctured with blackish-brown. Posterior margin of pronotum (narrowly) and the scutellum posteriorly, flavous. Elytra blackish-brown, closely spotted with fuscotestaceous, the spots larger on the costal area, membrane fumate, spotted with testaceous. Legs dark-brown, anterior and intermediate femora pallidly annulate near the apex; posterior femora pallidly biannulate near the apex; tibiae annulate near the apex. Connexivum above pallid. Abdominal sternites brownish-black.

Head above obscurely rugose punctured, beneath and sterna strongly and freely punctured, pronotum and scutellum strongly punctured, medianly carinate. Bucculae reach to base of head. Rostrum very long. Antennae seven-tenths of the length of the bug, first segment a little incrassate, second one-half to three-fourths longer than first, slightly longer than the third, one-fourth to one-fifth longer than the fourth, which is fusiform. Pronotum with smooth, short, undulate, subelevate transverse area; a little wider basally than apically, anterolateral angles broadly rounded, lateral margins sinuate. Pronotum a trifle more than twice as wide as long. Elytra finely rugose punctured, lateral margin of corium straight for about one-eighth of its length, then strongly arcuately dilated, apical margin roundly sinuate. Membrane large, extending considerably beyond apex of corium, nervures pronounced. Posterior femora stout, first tarsal segment longer than second and third together, third longer than second.

♂. Rostrum reaching to apex of posterior coxae or slightly beyond; sixth sternite apically slightly roundly emarginate, seventh somewhat deeply so.

♀. Rostrum reaching to base of fourth abdominal segment; sixth sternite apically somewhat deeply; seventh less deeply, angularly emarginate.

Long. 7—9 mm.

Hab. Oahu, Konahuanui ridge (November), Perkins; Konahuanui, 2500 ft. among decayed leaves, Blackburn; not rare among rotten leaves, etc. at the foot of a precipice on the mountains five or six miles from Honolulu, White; N. Koolau (July).—Lanai, 2000 ft., December; Halepaakai (July), Perkins. I have seen only six specimens.

(4) *Metrarga villosa*, White.

Metrarga villosa White, 1877, Ann. Mag. Nat. Hist. (4) xx. p. 371.

Plate V. fig. 44.

Similar to *M. contracta*, but the pronotum is a little narrower behind and shorter; the lateral margins of the corium a little less straight anteriorly; the membrane scarcely reaching beyond the apex of the corium, the nervures little apparent, the posterior femora less stout and not nearly reaching as far as the apex of the abdomen.

First and second segments of antennae (and sometimes the third partly) pallid fuscous, the fourth (and sometimes the third) fumate. Costal area spotted. Apical half of posterior femora pallid, basal half black. Venter brownish, mottled with pallid; femora and tibiae all biannulate. Bucculae reaching to about two-thirds the length of head. Second and third segments of antennae equal, each one-third longer than the fourth, two-thirds longer than the first. Rostrum reaching to base of fourth abdominal segment, first segment reaching slightly beyond base of head. Anterolateral margins of pronotum rounded.

♀. Sixth abdominal sternite angularly emarginate apically; seventh acutangularly emarginate.

Long. 5—5½ mm.; lat. 2½—3 mm.

Hab. Maui, Lahaina, 3000 ft., Koebele.—Oahu, not rare among rotten leaves, etc. at the foot of a precipice on the mountains five or six miles from Honolulu (White); Honolulu, 2000 ft. (June); Waiolani (June).

The ground colour varies from brownish-cinereous to brownish-black. None of the five examples I have seen possess the villosity characterized by White.

The general characters forbid its being a brachypterous form of *contracta*.

Fam. NAEOGEIDAE.

(= Hebridae auctt.)

Merragata F. B. White.

Merragata F. B. White, 1877, Ann. Mag. Nat. Hist. (4) xx. p. 113.

Lipogomphus Berg., 1879, An. Soc. Cient. Argent. (Hemipt. Argent. p. 286); and 1883, op. cit. ix. p. 14 (Addenda, Hem. Arg. p. 116).

A Central and South American genus, probably introduced into the Hawaiian Isles.

(1) *Merragata hebroides*, F. B. White.

Merragata hebroides F. B. White, 1877, Ann. Mag. Nat. Hist. (4) xx. p. 114, and 1878, op. cit. (5) i. p. 366; Champion, Biol. Centr. Amer. Heteropt. ii. p. 122, Pl. viii. fig. 7.

"On small stagnant pools formed by the temporary overflow of streams on the higher mountains. When the pools dry up the insect frequents the holes where the water has been" (White). Found also in Mexico.

I have examined the type and another example in the Perth Museum, and there is also another in the British Museum. Mr Perkins has not taken it.

The Hawaiian examples are a trifle larger than the Mexican, one female measuring just over two millimetres in length.

Hab. Hawaiian islands (Blackburn). No one island mentioned.

Fam. LYGAEIDAE, Kirkaldy.

(=Coreidae Leth. and Sev., 1894, Cat. gén. Hémipt. II. p. 1.)

Subfam. *CORISCINAE* Kirk.

(=Alydidae Leth. and Sev., op. cit. p. 105.)

ITHAMAR, gen. nov.

Probably related to *Apidaurus* Stål (which I know only by description). The absence of the spine at the apex of the posterior tibiae, and the second segment of the antennae longer than the first, which reaches well beyond the apex of the head, will distinguish it from the other allied genera with remote posterior legs. It is exceedingly like, in general appearance, *Daclera punctata* Signoret from Réunion[1], but differs by the proportions of the antennae, position of the eyes and ocelli, etc. Superficially resembling *Reduviolus innotatus*, White. Somewhat depressed. Head one-sixth longer than pronotum, anteocular part twice as long as postocular; juga not extending anteriorly quite so far as the tylus. Eyes remote from pronotum; ocelli about as far distant (or a trifle more) from one another as from the eyes, and placed near the base of the head, below the posterior margins of the eyes. Bucculae short, reaching a trifle beyond the insertion of the antennae, but not so far as the apical margin of the eyes. Segments of rostrum somewhat subequal, first not reaching to base of head, fourth not quite reaching posterior coxae. Antennae about two-thirds of the length of the body, fourth segment about two-fifths longer than the third, which is subequal to the second and about three-fifths longer than the first, which extends for half its length beyond the apex of the head; fourth incrassate, thicker than second and third but not so thick as the first. Pronotum densely impresso-punctate; carinate longitudinally (posteriorly evanescent); transversely impressed in the middle, just behind the apical margin; lateral margins sinuate, base truncate, about twice as wide as apical margin. Mesosternum deeply longitudinally sulcate. Elytra hyaline, impunctate, nervures strong, membranal nervures numerous, feeble; apical margin of corium sinuate. Stink-gland orifices not very distinct. Anterior coxae almost contiguous, intermediate coxae a little less remote than the posterior, which are inserted about as far from one another as from the lateral margins of the sterna. Anterior and intermediate femora, tibiae and tarsi respectively subequal in length; posterior femora twice as long as either of the other pairs; posterior tibiae about two-thirds longer than anterior. First segment of posterior tarsi a little longer than the second and third together. Posterior femora incrassate, strongly spinose beneath in a double series, not quite reaching apex of abdomen; posterior tibiae a little compressed, stout, strongly curved, not spinose (even at the apex).

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[1] In Maillard's Réunion, Pl. XX. fig. 7.

♂. Seventh segment above, apically rounded (no genital segments visible), a little longer than the sixth; beneath sinuately rounded.

♀. Seventh segment above shorter than the sixth, apically sinuately truncate, emarginate in the middle.

(1) *Ithamar hawaiiensis*, sp. nov.

Plate V. fig. 46.

Pale flavocinereous; vertex with a U, the sides narrowly passing between ocellus and eye, a median line on anterior half of pronotum, lateroposterior angles of the latter, abdomen above (except connexivum and sometimes apex more or less, pallid), apex of second segment of antennae, spines of posterior femora, apex of posterior tibiae, third segment of tarsi and claws in all legs—black or blackish. Head beneath and sterna pale fulvotestaceous, abdomen beneath and legs pale griseoflavous, posterior femora generally more or less spotted with black. Fourth segment of antennae brownish; corial nervures brownish or reddish-brown. Connexivum flavostramineous, internally margined narrowly with sanguineous.

♀. Genital segments sanguineous.

♂. A trifle smaller usually than ♀.

Long. $8\frac{1}{2}$—$9\frac{1}{2}$ mm. (to apex of abdomen); 9—10 mm. (to apex of elytra); lat. 2—$2\frac{5}{8}$ mm.

Hab. Maui, Haleakala, 7000—10,000 ft. (May); Lahaina, 2000 ft. (January), Perkins.—Molokai Mts., 3000 ft. (June).—Oahu, S. E. Coast (January).

RHOPALUS Schilling.

Rhopalus Schilling, 1829, Beitr. Ent. Schles. I. p. 26; Fieber, 1861, Europ. Hem. p. 232.

Corizus Signoret, 1859, Ann. Soc. Ent. France, p. 75; Lethierry and Severin, 1894, Cat. gén. Hémipt. II. p. 115.

Cosmopolitan; several species recorded from the early Tertiaries.

(1) ? *Rhopalus hyalinus*, Fabricius.

Lygaeus hyalinus Fabr., 1794, Ent. Syst. IV. p. 168.

Three specimens are doubtfully referred to this widely spread form.

Hab. Hawaii, Kona, 2000 ft. (April), one example.—Oahu, Waianae Coast (April), two examples.

Fam. CIMICIDAE.

Subfam. *CIMICINAE.*

(=Asopidae, Leth. and Sev., 1893, Cat. gén. Hémipt. I. p. 202.)

OECHALIA.

Oechalia Stål, 1862, Stett. Ent. Zeit. XXIII. p. 93.

Australia, New Zealand and the Hawaiian Isles. Only two species are known.

(1) *Oechalia griseus*, Burm.

Asopus griseus Burmeister, 1834, Nov. Act. Ac. Leop. XVI. Suppl. p. 293.
Arma patruelis Stål, 1859, Eugenies Resa Hem. p. 220.
A. pacifica Stål, op. cit. p. 221.
Oechalia patruelis and pacifica White, 1878, Ann. Mag. Nat. Hist. (5) I. pp. 366—7; Blackburn, 1889, Proc. Linn. Soc. N. S. W. (2) III. p. 343.
Plate V. figs. 47 & 48.

This is one of the most variable Cimicidae known to me. I have examined 43 individuals, and the variations are apparently distributed through the Islands, and the intermediate forms between the extreme varieties seem quite sufficient for their inclusion under one species. The two most dissimilar forms of pronotal structure are figured. The length of the bug varies from 8½—13½ mm., and the ground colour from a beautiful deep metallic green above and reddish below, to dull yellowish-brown above and pale dirty fuscous below, or on the other hand, deep brown, almost black, above and below. The extreme posterior part (the so-called "apex" of authors) of the scutellum is usually pale flavous, but sometimes unicolorous with the general scutellar ground colour.

HAB. "Extremely abundant on forest trees, especially *Aleurites*, at almost all elevations exceeding 1000 ft." (Blackburn). Hawaii, above Hilo, 1800 ft. (December); Kona, 2000—4000 ft. (June to August and November).—Molokai Mountains, 3000 to 3500 ft. (July).—Maui, Haleakala, 5000 ft. (March, April, October).—Lanai, Mt. Koele (February), Perkins.—Oahu, Burmeister and Stål, Kaala Mts., on fern, 2000 ft. (March, April, August), Perkins; Honolulu, Stål, 2000 ft. (April and October); Waianae Mts., 3000 ft. (April); Waianae coast (April); Kawailoa gulch, very far up (March and April).—Kauai, 2000—3000 ft. (January, February), Perkins.

Subfam. *PENTATOMINAE.*

EYSARCORIS Hahn.

Eysarcoris Hahn, 1834, Wanzen. Insect. II. p. 66.

Distributed well throughout the Old World. Recorded from the Tortonian of Baden.

(1) *Eysarcoris insularis*, Dallas.

Pentatoma insularis Dallas, 1851, List, I. p. 228.

Hab. "Sandwich Isles" (Dallas). [Is this perhaps the Isle in the S. Pacific?] Only known to me by the type in the British Museum.

Subfam. *CYDNINAE.*

Geotomus Mulsant and Rey.

Geotomus Muls. Rey, 1866, Punaises France, I. p. 34.

Almost cosmopolitan.

(1) *Geotomus pygmaeus*, Dallas.

Geotomus pygmaeus Dallas, 1851, List Hem. I. p. 129; Signoret, 1883, Ann. Soc. Ent. France (6) III. p. 51, Pl. III. fig. 160.

G. jucundus F. B. White, 1877, Ann. Mag. Nat. Hist. (4) XX. p. 110.

G. subtristis F. B. White, op. cit. p. 111.

This variable little species has been recorded from India, Ceylon, Java, Sumatra, Borneo, Cochin China, Celebes, New Caledonia, etc., under a great number of names.

Hab. "Widely distributed and pretty common, living under stones and about the roots of herbage, not confined to the mountains" (Blackburn). Dark var. Hawaii, Kona, 1800, 3000 and 4000 ft. (September); Kilauea (August).—Molokai coast (April); mountains, 4000 ft. (June); Makakupaia (July).—Oahu, Halemano, 2000 ft. (February), Perkins. I have seen 10 Hawaiian specimens. Pale var. Hawaii, Kilauea, 4000 ft. (August), Perkins. One example only.

Subfam. *SCUTELLERINAE.*

Coleotichus A. White.

Coleotichus A. White, 1839, Mag. Nat. Hist. II. p. 541.

Distributed thoughout Australian Region, also from Formosa and the Moluccas.

(1) *Coleotichus blackburniae*, F. B. White.

Coleotichus blackburniae F. B. White, 1881, Ann. Mag. Nat. Hist. (5) VII. p. 52.

C. blackburni Leth. and Sev., 1893, Cat. gén. Hémipt. I. p. 15.

Plate V. fig. 49.

This handsome species was described from a specimen preserved in alcohol. When mature, the upper surface is refulgent emerald-green with a well-marked crimson keel from the apex of the head to the posterior end of the scutellum, and the pronotum and scutellum are very closely irrorated with crimson. The green ground colour is very closely punctured with golden-green and bluish-green. The bug is certainly green with crimson markings, not vice versa as White has described.

Hab. Hawaii, Kona, about 2500 ft. (September), Perkins.—Oahu, Konahuanui, 2000 ft., Blackburn; Honolulu, on flowers, mountains, Blackburn, 2000 ft., Perkins.—Kauai, Waimea Mountains, 3000 ft. (May), Perkins; Halemanu (May), Perkins. I have seen only eight specimens. Blackburn (Proc. Linn. Soc. N. S. W. (2) iii. p. 344) notes a mutilated *Coleotichus* "taken from a spider's web at Konahuanui, Oahu, at an elevation of some 2000 ft., which appears to be distinct from *C. blackburniae* White. It is more elongate, with the surface of the thorax uneven."

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Dallas, W. S. List spec. Hemipt. British Museum (1851), p. 228. (Descr. *Pentatoma insularis.*)

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ADDENDUM.

Cockerell does not consider *Mytilaspis beckii* to be identical with *pinnaeformis* (see Proc. Philad. Acad. 1899, p. 275, and Science, XV. 1902, p. 744).

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By D. SHARP

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OR THE

ZOOLOGY OF THE SANDWICH (HAWAIIAN) ISLES:

Being Results of the Explorations instituted by the Joint Committee appointed by

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COLEOPTERA. II.

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COLEOPTERA.

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III. COLEOPTERA CARABOIDEA[1].

By D. Sharp.

Contents. § 1, *General remarks;* § 2, *Systematic account;* § 3, *Bionomical notes;* § 4, *Bibliographic list.*

§ 1. General Remarks.

The Adephaga or Caraboidea form one of the great divisions of Coleoptera and include at present probably between 15,000 and 20,000 described species. About 212 species are here enumerated as members of the Hawaiian Fauna. The number of species in the United Kingdom of Great Britain and Ireland is about 450, the area of the Hawaiian Islands being about one-eighteenth that of the United Kingdom. The series Adephaga of modern authors consists of seven families, only two of which are represented in Hawaii. The five families unrepresented in the Hawaiian Fauna are however comparatively small and, with the exception of the Cicindelidae, unimportant.

The two families present in Hawaii are the Carabidae with 210 species and the Dytiscidae with 2. The Carabidae are entirely terrestrial, the Dytiscidae aquatic.

Of the 212 species composing the Fauna 211 are precinctive, or confined to the area. The single species that is not precinctive is one that is distributed in various parts of the world, it is believed, by travellers. This species, *Plochionus pallens*, has been found on the island of Maui near Lahaina, the port first frequented by foreign commerce, and does not appear to extend its range, though it is probable that many years have elapsed since its introduction, which probably dates from the time when Lahaina was frequented by whaling ships. It is now, and for many years past has been, I believe, a comparatively unimportant commercial locality.

Of the 212 species of Hawaiian Caraboidea 149 are here described as new; 60 were discovered and described by the Rev. T. Blackburn (now of Adelaide) during his residence at Honolulu, about twenty-five years ago, as a chaplain of Bishop Willis; the other three were known to earlier authors.

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[1] Parts I and II of Coleoptera appeared in Vol. II; they dealt with Phytophaga, Rhynchophora, Heteromera, and Cioidae.

The number of specimens on which the following account is based is about 6500. By far the larger part of this material was obtained by Mr Perkins while working for the Committee. But I have also received specimens from other sources. I have to thank Mr Albert Koebele, the economic entomologist of the Hawaiian Islands, for some very interesting specimens. Mr Perkins has recently sent me specimens collected by himself and friends. And Mr Blackburn presented me with a set of the specimens described long ago by him.

Before entering on the systematic consideration of the genera and species, I may be pardoned for explaining the system I have adopted. It is indeed desirable that I should do this as the system is an unusual one, and some apology, as well as explanation, is demanded.

It is evident from the statistics I have already given that this part of the Hawaiian Fauna is quite apart from that of other parts of the world. We have no clue to its source. It is also clear that this isolated and precinctive fauna must have existed for an enormous period of time under most peculiar conditions. A small area separated almost completely from the rest of the world, but divided into islands of a wildly mountainous character, subjected for a vast, though uncomputed period[1] to the most extensive volcanic disturbances, while the history of the separate islands as to these disturbances is, chronologically, widely different—such an area offers biological conditions almost without parallel on the surface of our globe. Of such a precinct every philosopher must like to know the history. Its Fauna and Flora are to be looked upon as amongst the most interesting of the biological experiments of Nature.

Taxonomy. A preliminary scrutiny revealed the fact that these Hawaiian Carabidae are as regards their main divisions quite concordant with those of other parts of the world, but that they exhibit in an exaggerated form certain features that elsewhere are comparatively rare. The chief of these are (1) flightlessness, (2) a diminished chaetotaxy.

I have therefore used these two characters to an extent that has not been done by those who have treated of continental faunas, and I have relied on them, almost exclusively, for generic characters.

I am well aware that this system—as a system—has certain disadvantages. These indeed I hope to make evident in the following pages. But now that I have completed this part of the Hawaiian work I am of opinion that I have done right in adopting it. It at any rate brings the systematic divisions on to one plane with the bionomic aspects, and I think that by adhering to it my successors—and I wish I could hope they will be many—will find the interest of their work enhanced.

I may perhaps make the merits and demerits of this system clear by saying that under it an individual, by a simple process of discontinuous variation—such as there is reason for believing actually occurs—may *ipso facto* pass from the genus of its parents to another. It follows that the contemporary members of one generation may possibly belong to two different genera, though having the same specific parentage.

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[1] Dana, who studied these islands, considered them to be of enormous antiquity, but declined venturing on any specific estimate of their age.

In admitting this many will say that I have condemned the system I adopt, and that under such a system taxonomy would be merely a synonym with chaos.

To this I reply that I do not wish this method to be applied at once to the Carabidae of other parts of the world. The Hawaiian Fauna is, as regards this family, as isolated as are the islands, and we may be content with seeing how this method works with this isolated faunistic fragment.

And I may add that I have reason to believe that these dislocations of taxonomy—if they occur at all—occur but rarely.

If the study of the Hawaiian Fauna should show that they do occur; and if observation should show that, at the periods of the phylogeny when they occur, they do so in some cases with frequency, some evidence of real importance as to the mode of origination of species and of genera will have been disclosed.

A brief statement of this subject will reveal some very interesting facts. The 209 species of Hawaiian Carabidae belong to four groups, Anchomenides, Pterostichides, Bembidiides and Lebiides. The Lebiides should however be omitted, as the group contains only two species, neither of which has I believe any claim to be considered a natural member of the Hawaiian fauna. One of them, *Plochionus pallens*, I have already alluded to as having been probably introduced to Maui by the whalers that formerly frequented the roadstead of that island. The other, *Saronychium inconspicuum*, is not known to exist elsewhere. It was discovered by Mr Blackburn twenty-five years ago, one specimen being found in Honolulu, and a second among dead leaves on Konahuanui. It has never been found since, and it is therefore very doubtful whether it actually exists in the Archipelago. Its discovery elsewhere would finally discredit it as a natural member of the Hawaiian fauna.

The precinctive Hawaiian Carabidous fauna may therefore be considered to consist of 209 species, belonging entirely to three groups. The Carabidous fauna of the United Kingdom of Great Britain and Ireland consists of about 315 species, belonging to 25 groups. The remarkable taxonomic concentration of the Hawaiian fauna is not however adequately expressed by this brief statement because the Pterostichides form generally one of the largest and most varied of all the groups of Carabidae in all parts of the world; but in the Hawaiian fauna it includes 78 species, all of which would be placed in a single genus, *Cyclothorax*, were it not that I have separated them therefrom and divided them into four genera on certain of the degradational characters that form so marked a feature of the Hawaiian Carabidae.

Flightlessness. Vestigial wings. Much has been written on this subject, but the conclusions usually stated have a very small basis of fact, and interesting as the subject is, it must be considered a really neglected one. The data I here give are therefore of some importance, though they are very imperfect. They show that of 204 species 184 are flightless—possessing only vestigial wings—while twenty are fully winged[1]. In other words, 90 per cent. of the Hawaiian Carabidae are flightless species. I believe that in most continental regions these proportions would be about reversed; but no statistics as to this exist so far as I know; and no doubt the proportion would be found to differ greatly according to the locality selected for investigation. The Carabidae are "ground beetles," and allied forms may be either flightless or winged. Anchomenides are usually winged; the only known allies of our *Cyclothorax*-forms are winged; and the whole of the European Bembidiides I have examined are winged. The forms to which the Hawaiian Carabidae are allied are therefore chiefly winged forms. A parallel to the remarkable flightless Bembidiid fauna of Hawaii is however found in St Helena, where eleven out of the twelve species discovered by Mr Wollaston are "wingless."

Table of Hawaiian Flightless and Winged Carabidae.

Genus etc.	Flightless. No. of species.	Winged. No. of species.
ANCHOMENIDES.		
Blackburnia	1	
Deropristus	3	
Atrachycnemis	3	
Anchotefflus	2	
Pseudobroscus	1	
Derobroscus	3	
Brosconymus	1	
Anchonymus	1	
Mauna	1	
Disenochus	12	
Chalcomenus		3
Barypristus	2	
Baryneus		1
Colpodiscus		2
Prodisenochus	1	
Apteromesus	1	
Mysticomenus		2
Colpocaccus		6
Atelothrus	15	
Mesothriscus	14	
Platynus	2	
Mecostomus	1	
Mecomenus	2	
Metromenus	26	
PTEROSTICHIDES.		
Mecyclothorax	30	
Thriscothorax	29	
Atelothorax	1	
Metrothorax	16	
BEMBIDIIDES.		
Gnatholymnaeum	1	
Nesolymnaeum		1
Bembidium		5
Nesocidium	10	
Atelidium	1	
Metrocidium	2	
Nesomicrops	1	
Macranillus	1	
Total	184	20

It would be out of place to discuss at any length the theories that have been or that might be promulgated in reference to the flightlessness of insular beetles. Charles Darwin believed "that the wingless condition of so many Madeira beetles is mainly due to the action of natural selection, combined probably with disuse." Since he wrote it has, I believe, been stated that the insects of islands fly either better or worse (in many cases not at all) than those of continents. The former of these alternatives can scarcely be true as regards the Hawaiian Carabidae. Several of the species that have powers of flight have so limited a distribution within their haunts that it is clear they avail themselves of their wings very little; *Colpocaccus*, one of the winged genera, is more numerous in individuals than most of the other Anchomenides, but it is a feeble form, and doubtless—like most other beetles—drifts rather than flies. I do not think that the factors that have induced loss of wings in Hawaiian Carabidae are at all well expressed by Darwin's formula. I look on the loss of wings as induced probably by changes of habit becoming correlative with modes of growth[1]; and though the results may be effected to some extent by disuse, I think they have been mainly controlled by changes in habits, in instinct, and in physiological processes resulting from those prior modifications, and again inducing changes in the correlation of various parts of the body. Whether selection has played any part in the matter is clearly uncertain.

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[1] In the following table *Tachys*, of the Bembidiides, is omitted (as well as the two Lebiides previously alluded to) because I have no material for examination and it is doubtful whether they are more than recently introduced forms.

VESTIGIAL WINGS. It is commonly supposed and frequently stated that flightless or wingless beetles are apterous. This is a complete mistake, nearly the whole of the species called apterous really possess four wings; the anterior pair being transformed into elytra and the posterior pair reduced to appendages of varying size and form according to species, genus, etc. That these appendages are vestiges of organs that were formerly larger and then functionally useful is, for a variety of reasons that cannot here be discussed, probably true in a majority of cases if not in all. At the same time this does not prevent it from being also true that they may in some cases be rudiments as well as vestiges; in the sense that they may become again increased after having undergone reduction. These vestigial organs have been examined by me in the Hawaiian Carabidae to a certain extent, and I have made use of them for the purpose of establishing genera. I have invariably treated a species in which the wings are capable of being used for flight as of a different genus from one in which they are useless for this purpose. A functional wing is, in Carabidae, in the condition of repose twice folded; once by being bent (not doubled, but turned as if hinged) just proximal to the stigma on the costa, and again quite near to the tip. The functionless wings, or vestiges, are never thus folded even when they are of their largest size; their nervuration is very much reduced, and the apical part of the wing—that part beyond the stigma—is in Hawaiian flightless forms completely absent. There is in fact a great gap structurally between the functional and the functionless wing.

On the other hand the functionless—or vestigial—wing differs greatly according to species, as will be seen by reference to our plates.

Although great interest attaches to these vestigial wings of Coleoptera they have been very little studied, and I think therefore it will be worth while for me to set forth what I have observed about our Hawaiian forms. As the results differ in the case of the three groups, I will take them separately.

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[1] The bionomical notes at the conclusion of this memoir are of special interest in connection with this subject.

Group ANCHOMENIDES. A fair standard of comparison as to the size of the wings can be found in this group by comparing the length of the wing with that of the elytron. Most of the Hawaiian winged genera of this group have the wings about the usual size, the length of the wing being about 1½ that of the elytron. In *Baryneus sharpi* the measurement gives wing 15 mm., elytron 9½ mm. Although no data have, so far as I am aware, been published previously on the subject, this is I believe about the same relation as is usual outside the islands; I find that in our well-known European *Anchomenus parumpunctatus*, the lengths are wing 6¾ mm., elytron 4½ mm. The Hawaiian genera *Colpocaccus*, *Mysticomenus*, and *Colpodiscus*, as well as *Baryneus*, have similar relative measurements. In the genus *Chalcomenus* the dimension of the wing is distinctly reduced, it being in *C. molokaiensis* 7 mm. to 5½ for the elytron. In the aberrant *C. costatus* (from Kauai) the reduction of the wing is strongly marked, as is evident from inspection of Pl. VI. fig. 22. Measurement here gives wing 5¾, elytra 4⅞ mm. The wing is in this case however perfectly well developed, all the nervures being present and strong. There is no connecting link between this and the numerous forms of vestigial wings. These vary much in size according to the species, as may be seen by a glance at the plate; the transverse folding is completely absent, and the nervuration is very incomplete; the apical portion of the wing has in fact completely disappeared. The vestiges differ to some extent in shape, and a little in nervuration; the stigma, or large chitinous spot on the costa, can frequently be detected just at the tip of the vestige, and differs a little in position. The vestige is large in *Barypristus incendiarius* and also in *Apteromesus maculatus*: in the former measurement gives about, wing 6¼, elytron 10¼; and in *Apteromesus*, wing 2, elytron 4. The vestiges are extremely reduced in the most remarkable of the Hawaiian Anchomenides, being in *Deropristus* about ½ mm. long, while the elytron is 5¾ mm.

In any single species of Anchomenid the vestiges vary but little so far as I have observed. In testing this I have had assistance from Miss Alice Embleton. Upwards of fifty examples of one species have been examined, the method being as follows. The vestiges not being visible in the ordinary condition of the insect with closed elytra, 38 examples of these were selected; the chosen being those that differed most in size and shape: one elytron and one vestigial wing (those of the right-hand side) were taken off each specimen and fastened with gum on ruled millimetre paper, specimen and appendages side by side. In addition to the examples measured and tabulated by Miss Embleton, I myself dealt with fifteen or sixteen others. In all upwards of fifty specimens of *Barypristus rupicola* were dealt with. It is scarcely necessary to give the measurements of all the individuals, it is sufficient to say that the elytra were found to vary in length about 2·7 mm., the longest being 11·2, the shortest 8·5. The vestiges varied about 1 mm. in length, the longest being about 3·5, the smallest about 2·5 mm. Thus the vestiges in absolute variation varied much less than the elytra, but in proportion to their sizes the variation of the vestiges was somewhat the greater.

I have not made any other extensive special examination of these Anchomenid wings, but I have seen nothing to lead me to suppose that they are variable to any considerable extent; and I incline to believe that what is true of the variation of *Barypristus rupicola* applies to most of the other species. It amounts to this, that the vestiges are not very variable; and that if, where they are still fairly large, they are to be looked on as in process of diminishing, then the diminution is effected by factors that affect all the individuals of a species in an approximately similar manner[1].

Group PTEROSTICHIDES. Our 78 species of this group are all I believe flightless. I have examined those species that from their shape and contour gave a suggestion that they might be winged, but I have found none that were so. *Mecyclothorax amaroides* is a robust, broad-shouldered form, and I thought would certainly have good wings. On the contrary they are completely vestigial. The vestiges are apparently but little varied; I have noticed that usually they are about as long as the metanotum; in *M. montivagus* they are about $\frac{3}{4}$ the length of the metanotum.

The phenomena in this group appear to be considerably different from those we find in the Anchomenides, the species being all flightless, and the vestigial wings but little varied.

Group BEMBIDIIDES. In this group the two genera *Nesolymnaeum* and *Bembidium* with five species, are winged. The other forms are doubtless all flightless, and many of them, judging from their general appearance, are probably in the most advanced condition of wing-degeneration. We have obtained but a small number of specimens in this group, so that of only two species have I had any material for examining the wing-variation. These are *Bembidium molokaiense* and *Nesocidium laeticulum*. In discussing them I shall narrate my observations and need not repeat them here. It is sufficient to say that during my examination of the Kauai examples that I supposed to belong to the flightless *Nesocidium* I discovered two individuals I had assigned to it to be fully winged. I am unable to distinguish them by any other character, and though I have at present treated them as distinct (and as a variety of *Bembidium molokaiense*) I cannot but think that if further investigation were made of this species in Kauai we should find some interesting facts. I anticipate that we should discover that the flightless *Nesocidium laeticulum* sometimes occurs with fully developed wings (and is then according to the present system *Bembidium molokaiense* var.). If so the varietal formula would be something of this sort, viz. this species of creature usually has only small vestigial wings; but specimens occur in which the vestiges are larger, though functionless, and also other individuals in which the wings are of full size and functionally fit; the discontinuity of the variation being in this case very remarkable.

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[1] Casey examined vestigial wings of *Blapstinus* and found them but little variable (Ann. New York Ac. VI. 1892). It has been stated that certain European *Carabus* fly in certain localities, though the wings are atrophied elsewhere. This is contradicted by Lomnicki, who states that *Carabus* is always flightless, and that the vestigial wings are in most species constant in size; but that in one or two species they are dimorphic, being of two grades of development. My own observations lead me to believe that Lomnicki's statements are probably correct. Zool. Anz. 1898, p. 352.

It will thus be seen that my observations, admittedly of a very imperfect character, tend to show that probably the phenomena of wing-variation are different in each of the three groups that make up the Carabidous fauna of Hawaii.

Chaetotaxy. This subject has become of an importance that is still increasing in several orders of Insects. From the chitinous skeleton there stand out hairs that in some cases penetrate the chitin and are connected with a special nerve, thus forming a simple but effective set of sense-organs. The description of the ways in which these hairs are arranged is called chaetotaxy. In Carabidae those on the head have been found to be of great importance for classification. The great sub-family Harpalini—possessing probably 100,000 species—is characterised by the possession of two intra-orbital setae on each side. All our Hawaiian Carabidae belong to this sub-family.

The setae on the thorax I consider to be also of considerable importance in the three groups to which the Hawaiian Carabidae belong. Their number is, normally, two on each side, one at or near the hind angle, the other a little before the middle. This condition is varied by the absence of one or of both of the setae in certain genera or subgenera[1]. Outside the Hawaiian islands this normal condition of a pair of thoracic setae on each side seems to be extremely usual in the two groups Anchomenides and Bembidiides, and it is the condition existing in the only extra-Hawaiian genus—*Cyclothorax*—that is allied to the Hawaiian Pterostichides. Just as we found the Hawaiian Carabidae to be remarkably subject to degeneration of the wings, so do we find them to be remarkable for the diminished number or total absence of these thoracic setae. The cephalic setae remain constant in their number in Hawaii, but of the 208 species no less than 146 have a diminished number of setae, as shown in the following Table of the thoracic setae of Hawaiian Carabidae.

Name of genus	2 pairs of setae No. of species	1 pair of setae; basal No. of species	1 pair of setae; median No. of species	No setae No. of species
ANCHOMENIDES.				
Blackburnia		1		
Deropristus		3		
Atrachycnemis		1		2
Anchotefflus				2
Pseudobroscus		1		
Derobroscus				3
Brosconymus				1
Anchonymus				1

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[1] Systematists are not yet agreed as to the taxonomic value of these thoracic setae. In some divisions of Carabidae they are but of little importance; but in the three groups with which we are occupied I am convinced that they are of generic value. There are also a few cases that detract from the importance of the intra-orbital setae.

Name of genus	2 pairs of setae No. of species	1 pair of setae; basal No. of species	1 pair of setae; median No. of species	No setae No. of species
Mauna		1		
Disenochus		12		
Chalcomenus		3		
Barypristus		2		
Baryneus		1		
Colpodiscus		2		
Prodisenochus	1			
Apteromesus				1
Mysticomenus				2
Colpocaccus	6			
Atelothrus		15		
Mesothriscus			14	
Platynus	2			
Mecostomus			1	
Mecomenus				1
Metromenus				26
PTEROSTICHIDES				
Mecyclothorax	30			
Thriscothorax			29	
Atelothorax		1		
Metrothorax				15
BEMBIDIIDES				
Gnatholymnaeum	1			
Nesolymnaeum	1			
Bembidium	4			
Nesocidium	10			
Atelidium		1		
Metrocidium				2
Nesomicrops	1			
Macranillus	1			
Number of species	57	44	44	56

This table shows that about 28 per cent. of the species of Hawaiian Carabidae have the thoracic setae normal, the other 72 per cent. suffering reduction; the number that have suffered total loss of the setae being about as great as that in which the structures remain normal. The three groups are considerably different; only nine per cent. of the Anchomenides remain normal, while about 39 per cent. have totally lost the setae. In Bembidiides only three out of 21 species have any diminution of the setae.

Very little is known statistically as to Coleopterous chaetotaxy, and it will of course be long before statistics dealing with the whole order can be obtained. Even as to the Carabidae we must wait long for adequate information, but as I have at different times dealt with Carabidae from various other parts of the world I can say that I believe that nowhere else have the beetles of the corresponding groups anything approaching to similar statistics. We have not in Britain a single member of these three groups that has undergone total loss of thoracic setae, and but very few that have lost even one of the pairs.

I have made use of the characters of prothoracic chaetotaxy for the purposes of arranging the species in genera. As I have examined about 6500 individuals and as this is the first time that these structures have been used to any great extent for taxonomical purposes I shall be pardoned for discussing this subject at some length. These setae are very easily removed by rough handling, and specimens in collections are often deprived of them. Each seta springs however from a pit extending to some depth in the chitin and this always remains. When such a pit exists we are justified in treating the specimen as one that had a seta there[1]. The pits are however rendered obscure in certain cases by both artificial and natural causes. Sometimes they are filled up by dirt —and this dirt may be either extraneous, or an excretion from the insect itself. The natural punctuation, or sculpture, of the surface is sometimes of a nature that makes it difficult to perceive the pit. In some cases, too, a decision as to the existence of the pit is rendered difficult by its situation ; it may be on the side of a raised margin, and this may prevent the light from falling on it. With a little care and experience all these difficulties disappear.

There are however facts that to some extent invalidate the utility of this character. In some cases the pit and seta are present on one side of the thorax and not on the other. This however occurs but rarely. A similar anomaly occurs in some details of the nervuration of the wings of other insects, but it is found not to seriously affect the value of the character for taxonomic purposes, for it is believed that the anomaly only occurs on both sides as a very rare exception. This is certainly the case as regards the pit and seta. I have borne this in mind and am convinced that only in two or three cases is it probable that the complete anomaly occurs. These I shall subsequently mention as they are of extreme interest.

When, in the Hawaiian Carabidae, the pit and seta are present on one side only, the individual may be safely treated as one of a species in which the seta is present. This departure from bilateral symmetry is in fact a deficiency ; it is not a sport, by excess, of a species having no seta[2]. It is recorded that in certain cases a seta may be in duplicate ; that is to say, instead of there being one pit and one seta in a certain situation, there are two in close proximity. I have only observed one such anomaly in our Hawaiian Carabidae : it occurs in a specimen of *Thriscothorax unctus*, one individual of which has the setae doubled on one side of the thorax.

Under these circumstances I have found it safe to rely on the seta for discriminative purposes.

In the cases of *Mecyclothorax robustus* and *Atrachycnemis sharpi* I have acted inconsistently. I have placed in *Atrachycnemis A. sharpi* with setae, though the other two species of the genus have none. But in the case of the *Mecyclothorax* I have separated specimens generically, solely on account of a difference in the setae. My reasons for this discrepancy are as follows. In *Atrachycnemis* the setae are extremely reduced in size, all of the setae of the body being very small and feeble: moreover in this division of the Hawaiian Carabidae the setae appear to be of less importance than they are elsewhere, they being, I suggest, rendered functionally useless by the exudation with which such genera as *Blackburnia*, *Atrachycnemis* and *Anchotefflus* are so frequently covered. On the other hand the *Cyclothorax* forms have the setae of the body well developed, and their presence or absence appears not to be affected by any considerations such as those I have alluded to as existing in the case of *Atrachycnemis*. The problem as to whether *Mecyclothorax robustus* and *Thriscothorax robustus* (differing almost solely by their setae) may be really only dimorphic forms of one species, is not the least interesting of the questions raised by my slight study of the Hawaiian Carabidae, and as the insects are apparently not rare on Haleakala it may be possible to decide it by observation of the forms in their haunts. I have alluded to it when speaking of those species.

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[1] This may not be absolutely true, as will be seen by my subsequent remarks as to *Atelothrus transiens*.

[2] This, again, may not be absolutely true ; cf. what is said as to *Metromenus pavidus*, and *Mesothriscus truncatus*.

A most interesting condition is present in *Atelothrus transiens*. In that species the pit is present but the seta that should grow out of it is usually absent. We have received fifty examples of this species, and in only one of them is the seta present; it is then on one side only, but it is of normal size. This is a highly interesting variation. Taken in connection with the fact that the setae in Hawaiian Carabidae are so much below the average it induces one to suggest that this is a case in which the structure is at present actually in the process of specific atrophy.

The case of *Metromenus pavidus* and *Mesothriscus truncatus* already alluded to is much more obscure. Among 240 examples of the former species—which is one having no thoracic setae—I found three examples that have a seta. It is medianly placed, and I have described them as a separate form, *Mesothriscus truncatus*. If this should prove to be a sport of *Metromenus pavidus* it may be considered a case of atavistic reversion; the species formerly had setae; has lost them; and yet examples are occasionally produced having the setae.

One more point may be mentioned; there are in the Hawaiian fauna a certain number of Anchomenids that depart considerably from the average of their fellows. They are more elongate in shape, with longer legs, and are also of a paler colour than is usual in other forms, Plate VI. fig. 10. In accordance with my system these forms come into three genera, *Atelothrus*, *Mesothriscus* and *Metromenus*. I was at first inclined to the opinion that the separation of these similar forms was a result that invalidated the system. On comparing these forms—of which there are some eight or ten—it appeared, however, that none of those that I considered different on account of the setae could be correctly associated as one species even if the setae were altogether left out of consideration; and I therefore look on these long-legged forms as instances of convergence. They are all very rare, and are, as it were, being brought together from different origins by some agencies we do not understand. Should these examples —as we suppose many other Hawaiian Carabidae have done—lose their setae, it would then be a difficult matter to distinguish the species, and many entomologists would declare them all to be one.

Had I not adopted the condition of the wings and the thoracic setae as a basis for genera our Hawaiian Carabidae would have appeared as members of only three or four genera. The other structural characters I have used for discrimination are extremely slight. This should be borne in mind, as the picture thus presented of three distinct groups, each consisting of a considerable number of closely allied forms, is fairly correct.

There are one or two points of a general nature that may be noticed. The Hawaiian Carabidae are as a whole considerably below the average in stature; the largest form—*Barypristus incendiarius*—is scarcely so large as our *Pristonychus terricola*; and small forms predominate. The Bembidiids are on the average smaller than our European forms, and there is not a single instance of a form that is large for the group to which it belongs. Fine colours and elegant shapes are extremely rare, but there are examples of remarkable sculpture.

The fore-feet of the male are much less developed than usual. Their dilatation is so slight that it can generally scarcely be detected. The Bembidiids form to some extent an exception to this; but this group is one in which this character is everywhere inconspicuous.

Variation. That the Hawaiian Carabidae are variable is quite certain. To what extent they are variable in comparison with their analogues in other faunas is however a very difficult question. There are certain reasons that incline one to estimate too highly the variability of Hawaiian forms. In studying European beetles we have all sorts of books to help us, and these have been so drawn up as to put on one side the variable characters and draw our attention to those that are comparatively stable. In the Hawaiian fauna this is not yet the case. We have to look at everything, and unless one has a long series, it is very difficult to form an opinion as to the stability of the characters observed. After making allowance for this, and for the various isolated forms that are easily distinguished on one or two specimens, I think that as a whole the Hawaiian Carabidae are really more variable than the European.

There are many very variable species in Europe—protean they are frequently called—but I think the proportion of these is greater in Hawaii than in Europe. Some Hawaiian species are but little variable so far as extant evidence goes. The two species of *Deropristus*, *D. puncticeps* and *D. deroderus*, vary but little if I may judge from the 100 examples I have seen. *Metromenus pavidus*, of which I have seen 240 specimens, shows but little variation. But it must be recollected that our specimens come from but few localities, and the variation might be greater if the area of the distribution were more thoroughly scrutinised. Whether there is anything in Hawaiian species to correspond to the geographical variation one finds in European forms; or whether that geographical variation has become accentuated, so as to form species, by the separation of the area into islands between which there is but little communication, it would be very difficult to say. But I have an impression that this is the case. The forms I have placed in *Colpocaccus* are well-winged, and they are more nearly allied than most of the other forms I have admitted as species, so that it would perhaps have been better to treat one or two of them as subspecies. I incline to think that this inferior differentiation may possibly be due to the greater frequency with which individuals of *Colpocaccus* pass from one island to another. The numerous flightless forms can in most cases be rarely, if ever, transmitted from one island to another. Careful inquiry may possibly show that the flying forms are represented by subspecies in different islands, and the flightless forms by distinct species. But on these points there is no adequate evidence.

Distribution. All the Hawaiian Carabidae are precinctive with the exception of one species that is probably not native. Three or four others may possibly be found elsewhere.

There is nothing whatever to indicate any particular region as that from which they were derived. *Platynus* and *Bembidium* are the two genera that Hawaii has in common with other parts of the world, and both of them are nearly cosmopolitan.

The species of the *Cyclothorax* division (Pterostichides) are very closely allied to the two or three species that constitute the genus *Cyclothorax*. These are found in Australia and New Zealand. But in those countries only two or three of these forms are known, whereas in Hawaii we have about 80. It would therefore be quite as reasonable to infer that the Antipodean forms have been derived from the Hawaiian as to assume the opposite proposition to be true.

Distribution within the islands. We may summarise this by saying that nearly the whole of the species are confined to a single island. When a species occurs on more than one island it is nearly always the case that the localities of its occurrence are on islands that are adjacent, such as Maui and Molokai.

TABLE. Showing the genera and their distribution in the islands, and the number of species in each island.

	Kauai	Oahu	Molokai	Lanai	Maui	Hawaii
ANCHOMENIDES						
Blackburnia		1				
Deropristus		1	1		1	
Atrachycnemis			1		2	*
Pseudobroscus					1	
Derobroscus		3				
Brosconymus		1				
Anchonymus					1	

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* Since the remark on p. 195 was printed I have ascertained that the habitat of *Atrachycnemis koebelei* is W. Maui, not Hawaii.

	Kauai	Oahu	Molokai	Lanai	Maui	Hawaii
Anchotefflus	1	1				
Mauna					1	
Disenochus	5		3		4	
Chalcomenus	1	1	1			
Barypristus					1	1
Baryneus					1	
Colpodiscus					2	1
Porodisenochus					1	
Apteromesus	1					
Mysticomenus		2				
Colpocaccus	2	1	1	1	1	2
Atelothrus	1		2	2	9	1
Mesothriscus	5	2	4	1	3	1
Platynus	1				1	
Mecostomus					1	
Mecomenus					2	
Metromenus	3	17	5	1	1	1
PTEROSTICHIDES						
Mecyclothorax			6		21	4
Thriscothorax		3	8	2	12	6
Atelothorax					1	
Metrothorax		1	4		7	3
BEMBIDIIDES						
Gnatholymnaeum	1					
Nesolymnaeum		1	1			
Bembidium	3	2	2		3	1
Nesocidium	5	2	1		2	
Atelidium	1					
Metrocidium	2					
Nesomicrops	1					
Macranillus	1					
Tachys		4				
LEBIIDES						
Plochionus					1	
Saronychium		1				
	34	44	40	7	80	21

This census shews:—Kauai 34, Oahu 44, Molokai 40, Lanai 7, Maui 80, Hawaii 21, species.

The most remarkable features are the richness of Maui and, in strong contrast, the poverty of the great island of Hawaii. Further researches will no doubt result in considerable modification of these figures. They are probably in part due to unequal collecting and to other circumstances that are not really connected with the natural distribution of the species.

The wealth of Maui and its neighbour island Molokai is very extraordinary; and is most marked in the Pterostichides; these two islands possessing 59 out of a total of 78 species. The island of Kauai is rich in Anchomenides and Bembidiides, but possesses no Pterostichides. Oahu is the metropolis of the extensive genus *Metromenus* and has 17 of the 26 species thereof. Hawaii is poor in all the groups, least so in Pterostichides, of which it has 13 species.

If this table be studied with the map it seems to indicate that the movement of species has been on the whole from North to South. This is best shown in the Pterostichides and Bembidiides. From the metropolis—Maui and Molokai—of the former group, 4 species are found northwards in Oahu, but none have reached Kauai; on the other hand 13 species are found southwards in poverty-stricken (so far as Carabidae are concerned) Hawaii. Kauai is the metropolis of Bembidiides, and it seems probable that as species of this group are found in all the islands to the south (except Lanai), that most of them have been derived from Kauai. The Kauai species of Anchomenides are as a rule remarkably distinct; and it is not unreasonable to infer that—notwithstanding its superior age as a theatre for entomological action—it has been comparatively free from immigration from the other islands, though not infrequently sending emigrants to them.

Before passing to the enumeration of the species it is right to say that I think this collection of Hawaiian Carabidae is far from being a complete one. No Carabidae were known to live in the Hawaiian islands until about twenty-five years ago. The Rev. T. Blackburn, during his residence in the islands, at that time discovered and described no less than 60 species. The laborious exertion and great perseverance of Mr Perkins have increased the number to 210. When I recall the fact that large parts of the islands are entomologically still terrae incognitae, and also that Mr Perkins collected, in the localities he visited, not only all the Orders of insects, but likewise birds, molluscs, spiders, etc., I am warranted in saying that I think the Hawaiian Carabidae may prove to include about twice the number of forms here catalogued. The nature of the collection confirms this view, there being many forms represented by only one, two, or three specimens.

Hawaiian Carabidae are extremely subject to the attacks of Laboulbeniaceae, a form of Cryptogam that flourishes on chitin. This is carried to such an extent that some of the specimens are perfect gardens of these curious fungi. Some three or four years ago Professor Roland Thaxter visited Europe for the purpose of his phytological work on this group. On his attention being called to the collection of Hawaiian Carabidae formed by the Sandwich Islands Committee, he examined it in detail, and took away many specimens of the parasites. He has since published descriptions of some of them, and as he left a ticket attached to each beetle from which he took specimens of the parasites, I have added to my paper the numbers written on his tickets. The species of insect on which the Laboulbeniaceous parasite lived can thus be identified, as Professor Thaxter published these same figures in connection with his descriptions.

§ 2. **Systematic account of the Coleoptera Caraboidea.**

The Caraboidea, or Adephaga, as they are often called, are easily recognised by the five-jointed tarsi, the rather long, slender antennae not thickened at the tip; by the highly developed mouth-parts, mandibles large, outer lobe of maxilla divided, and by the structure of the under-surface of the abdomen, which has five segments visible along the middle and six at each side.

In Hawaii there are two families.

1. Carabidae; terrestrial beetles, with all the legs formed for running, and the antennae delicately pubescent and setose.

2. Dytiscidae; water-beetles, with the hind legs transformed to swimming organs, the antennae quite bare.

Fam. CARABIDAE.

Subfam. *HARPALINI.*

Two setae on the inner margin of the orbit, one of them just behind the eye, but varying as to proximity according to the size of the eye. The four groups may be distinguished as follows:

Elytra cut off in nearly a straight line behind; claws (in the two Hawaiian genera)
  serrate beneath .... *Lebiides.*
Elytra not cut off behind; the tips are either coadapted with the body behind
  (Pterostichides, Bembidiides), or more or less flat and sinuate (Anchomenides).
  Claws simple.
  Last joint of palpus minute, appearing as a small appendage of the penultimate
    joint, Pl. VII. fig. 25 .... *Bembidiides.*
  Last joint of palpi large.
    Side margin of elytra near the tip distorted, Pl. VI. fig. 12 .... *Pterostichides.*
    Side margin of elytra simple .... *Anchomenides.*

The Bembidiides and Pterostichides are nearly all smaller than the Anchomenides.

Group *ANCHOMENIDES.*

DIVISION I. Hind tarsi not sculptured.

(For Div. 2 vide p. 213.)

This includes seventeen genera. The tarsi are always evenly convex above, without any grooves or impressions.

[It should be noticed that in some members of Division 2 the tarsi are only very obscurely grooved.]

The following key will facilitate the determination of these forms.

Wingless forms, with remarkable sculpture, so that the large pits on the eighth stria near the extremity can scarcely be detected. *Blackburnia*, *Deropristus*, *Atrachycnemis*, *Anchotefflus.*

Wingless forms, without a definite thoracic margin, sculpture normal. *Pseudobroscus*, *Derobroscus*, *Brosconymus*.

Thorax margined; sculpture normal, not deep pits.

Wings fully developed	*Chalcomenus*, metasternum short	4th joint of hind tarsus not bilobed.
	Baryneus, metasternum elongate	
	Colpodiscus, a basal thoracic seta	4th joint of tarsus bilobed.
	Mysticomenus, no thoracic seta	
Wings atrophied	*Anchonymus*, tarsi not lobed	no thoracic seta.
	Apteromesus, tarsi bilobed	
	Mauna	1 basal thoracic seta.
	Disenochus	
	Barypristus	
	Prodisenochus	2 thoracic setae.

BLACKBURNIA Sharp.

Blackburnia Sharp, Ent. Mo. Mag. XIV. (1878) p. 179 and op. cit. XX. (1884) p. 217.

This genus must be considered as among those that have a single pronotal seta on each side, though the incrustation of the surface leads to the concealment or destruction of the seta, and the rough sculpture makes it difficult to detect the point of insertion. This is the most deeply sculptured of the Hawaiian Anchomenids, but the surface is always covered with an incrustation by which the sculpture is concealed. The thoracic setae are destroyed in all the individuals before me except one: the point of insertion is on the upturned edge, close to the hind angle.

(1) *Blackburnia insignis*, Sharp.

Blackburnia insignis Sharp, Ent. Mo. Mag. XIV. p. 179, and Tr. Dublin Soc. n. s. III. Pl. IV. fig. 4.

Although the dilatation of the front tarsi of the male is so slight as almost to be imperceptible, and although the two rows of sexual hairs on their underside are not visible, yet this sex may be distinguished from the female by there being only one seta on each side of the middle of the last ventral plate instead of two, as is the case in the female.

HAB. Oahu: Waianae mountains 2500 ft., July (Blackburn); February (Perkins).

Var. *kaalensis*, var. nov.

Elytra only were found of this form; the sculpture is not so extreme, the interstices being less raised and the foveae not so deep and not so definitely separated.

HAB. Oahu: Kaala mountains, 3000 ft., March 1893 (Perkins).

DEROPRISTUS, gen. nov.

Thorax marginatus, ad angulum posteriorem seta erecta munitus. Alis perminutis. Elytra grosse sculpturata, ad basin in medio haud marginata. Abdomen suturis perprofundis.

The species of this genus differ markedly from *Blackburnia* by the shape of the base of the elytra. The legs and antennae are moderately elongate. The males have the sexual clothing of the front feet similar to that of most of the other Hawaiian allied genera.

Although very different in appearance from *Atrachycnemis*, *Deropristus* appears to be really allied thereto. The different shape and sculpture and the longer legs, palpi and antennae, and the extraordinarily deep ventral sutures are the only characters I find to distinguish it. The vestigial wings are in these forms reduced to their extreme, being scarcely ·5 mm. long.

(1) *Deropristus blaptoides*, Blackb.

Blackburnia blaptoides Blackburn, Ent. Mo. Mag. xv. p. 157.

This is a very distinct species of large size, massive build, with the foveae of the elytra very large and crowded. It is known only by a single specimen.

HAB. Oahu: Konahuanui, 1500 feet; under a stone (Blackburn).

(2) *Deropristus puncticeps*, sp. nov.

Piceus, nitidus, capite thoraceque profunde punctatis, hoc basin versus evidenter angustato, margine laterali prope angulos posteriores fortiter elevata; elytris nitidis, sulcatis, sulcis numerose punctatis, interstitiis subconvexis. Long. 11 mm.

Plate VI. fig. 1, specimen with right elytron and vestigial wing extended.

Readily distinguished from the following species (*D. deroderus*) by the broader thorax, the sides of which stand up more behind, as well as by several characters of structure. The coarse sculpture of the thorax is deep but not dense, and is irregular, the interstices between the punctures varying much in their extent; the seta is placed on the lateral margin, some considerable distance (½ mm.) in front of the angle. The deep foveae in the grooves of the elytra are very numerous, there being 37 on the sutural groove. A small series.

HAB. Molokai. In the mountains below the densest forest, 4000 ft. May and June, 1894 (Perkins, Nos. 189, 589, 592, 594).

(3) *Deropristus deroderus*, sp. nov.

Piceus, sat nitidus; capite thoraceque grosse, profunde punctatis, hoc basin versus minus angustato, margine laterali parum elevata; elytris sulcatis, sulcis numerose foveolatis, interstitiis angustis, vix elevatis. Long. 9—10 mm.

Although at first sight extremely similar to *D. puncticeps* this is really very distinct; the side-margin of the thorax is but little elevated, even at the hind angles, the thorax is as broad behind as it is in front, and the anterior angles are not in the least prominent, the last ventral plate is transversely wrinkled, and the punctures, or foveolae, of the upper surface are larger. In addition to these characters the species is perfectly distinguished by the considerably shorter palpi, and the rather shorter legs.

The dilatation of the male front tarsi is very slight though distinct, and the sexual hairs on the under surface are very evident. There is in the male only one puncture on each side of the middle of the last ventral plate: in the female there are two. A fine series of over fifty specimens was procured by Mr Perkins, and exhibits little variation.

HAB. Maui: Haleakala 4—5000 ft., in March, April and October (Perkins, Nos. 356, 370, 382, 636, 661, 680).

ATRACHYCNEMIS Blackburn.

Atrachycnemis Blackburn, Ent. Mo. Mag. xv. p. 120; Sharp, op. cit. xx. 1884, p. 218.

Though the species for which this genus was founded was assigned both by Blackburn and Karsch to the sub-family Harpalidae there is now no doubt that it is an Anchomenid. I have examined the structure of the elytral margins, and find that they make no approach whatever to the Pterostichid structure; the tips of the elytra are closely adapted to the body, which is unusual in Anchomenides, but that is all. The mandibles are very thick, and so much bent down at the tip as to be almost hooked.

The insects of the genus are amongst the rarest of the Hawaiian Coleoptera. The three species are excessively similar, and yet, if I am not deceived, differ by the fact that one of them has a thoracic seta, while in the other two it is absent. They cover themselves with an exudation somewhat similar to that of *Blackburnia* (though of insignificant extent compared to the extraordinary coating of the latter genus), and it may be that this peculiarity prevents the proper development of the seta. All the setae are very small and fine, at the best, in *Atrachycnemis*. In these two genera the presence or absence of the seta seems to be a much less important criterion than it is in the other Hawaiian Carabidae. Notwithstanding the comparatively well developed shoulders the wing vestiges are very minute, as in *Deropristus*.

(1) *Atrachycnemis sharpi* Blackburn.

Atrachycnemis sharpi Blackburn, Ent. Mo. Mag. xv. p. 120.
Anisodactylus cuneatus Karsch, Berlin. Ent. Zeitschr. xxv. p. 3, pl. I. fig. 4.
Plate VI. fig. 3.

This species may be distinguished from the other two by the more sharply marked hind angles of the thorax, as well as by the presence of a seta just in front of the angle and by the denser and more rugose sculpture. Apparently however it varies somewhat both in the sculpture and in the form of the thorax. The sensitive seta, or its orifice of insertion, is however present in all the specimens before me. The male and female are extremely similar, but the former sex has, as usual, only one seta on each side of the middle of the hind margin of the last ventral plate; and the sexual clothing on the under surface of the scarcely dilated front tarsus is present.

HAB. Maui (Blackburn, Finsch, Perkins). Haleakala, 4—5000 ft., February to May and in October. Very rare. (Perkins, Nos. 112, 413, 582, 597, 610, 680). Found at Olinda both by Herr Otto Finsch and Mr Perkins.

(2) *Atrachycnemis perkinsi*, sp. nov.

Niger, opacus, antennis pedibusque piceo-rufis; thorace angulis posterioribus obtusis, sculptura subobsoleta; elytris striatis, striis vel impressionibus angustis elongatis vel foveolis parvis munitis, interstitiis vix convexis. Long. 7 mm., lat. elytrorum 3 mm.

Thorax distinctly narrower behind than in front, the hind angles slightly obtuse, the lateral margin fine, in front very fine; the sculpture is somewhat coarse, but very shallow, as if effaced. The elytra have rather fine striae which are here and there interrupted longitudinally, or are furnished with comparatively indistinct foveoles. The surface is very dull.

HAB. Molokai: 4000 ft. June 1896. (Perkins.)

(3) *Atrachycnemis koebelei*, sp. nov.

Minus latus, niger opacus, antennis rufis, pedibus piceo-rufis; thorace angulis posterioribus obtusis, disco crebre punctato, sed haud transversim rugoso; elytris sat profunde striatis, interstitiis convexis, striis impressionibus elongatis angustis, et foveolis parvis munitis. Long. 6½ mm., lat. 2½ mm.

This is narrower than *A. perkinsi*, and so far as I may judge from a single specimen, has a more regular punctuation than either of the other species; the impressions on the striae of the elytra are much smaller than they are in *A. sharpi* and are similar to one another. The head is narrower than it is in the other two species, it is dull and bears no punctures except those occupied by the sense-setae. The thorax is almost destitute of sinuation at the sides behind, the hind angles are distinctly obtuse and there is no sense-seta. The punctuation of the under-surface is very much reduced in comparison with that of *A. sharpi*.

Described from a single, male, specimen for which I am indebted to Mr A. Koebele, the State entomologist of the Hawaiian Islands.

HAB. Hawaii. (A. Koebele.)

It is not quite certain that this locality is correct. Some of Mr Koebele's specimens were labelled "Hawaii" in the sense of the Archipelago. I should think it probable that this species is really from Oahu.

ANCHOTEFFLUS, gen. nov.

Alae minutae. Thorax marginatus, absque seta erecta. Elytra sculptura profunda, regulari; ad basin modice conspicue marginata. Abdomen suturis tantum modice profundis.

Type *A. gracilis.*

Proposed for two species that are extremely rare, and apparently not closely related to any other Hawaiian forms. The two species are very different in appearance. They have no resemblance to *Derobroscus* and *Brosconymus* which also are destitute of a thoracic seta, but apparently are nearer to *Deropristus* in which a seta is present at the posterior angles. The internal portion of the basal margin of the elytra is not very definite, especially in *A. gracilis.* The ventral sutures (of *A. gracilis*) are normal. As in *Blackburnia* and *Deropristus*, the coarse deep sculpture seems to replace the large depressions that are seen on the 8th stria of other forms.

The four genera *Blackburnia, Deropristus, Atrachycnemis,* and *Anchotefflus* are difficult to distinguish by good characters, though they are very different in facies. *Atrachycnemis* can be separated by its short legs (Plate VI. fig. 3). *Deropristus* (Plate VI. fig. 1) has the elytra quite unmargined at the base. In *Anchotefflus* (Plate VI. fig. 4) and *Blackburnia* the elytra are margined at the base; the former has no thoracic setae. The latter normally has, but they are usually removed. In that case the genus may be recognised by the quite extraordinary sculpture, though this again is usually covered up by an exudation.

(1) *Anchotefflus gracilis,* sp. nov.

Angustus, niger, antennis pedibusque piceis vel rufis; prothorace angusto, basin versus angustiore, angulis posterioribus obtusis, circa margines punctato; elytris humeris carentibus, sulcatis, sulcis fortiter punctatis. Long. 9 mm.

Plate VI. fig. 4.

Antennae and legs long and slender. Head narrow, shining, without punctures, eyes prominent, very distant from the thorax. Thorax much narrower than the elytra, lateral margin normal, behind strongly raised, front angles not at all prominent, hind angles very obtuse; near the margins there are coarse punctures and the disc is slightly wrinkled. Elytra narrow, ovate, at the base the outline slopes inwards in a very gradual manner, the inner portion of the basal margin rather indefinite; the grooves are broad and regular, with narrow, strongly raised interstices; in the grooves there are rather large and deep punctures. The under-surface is very shining, except that the last ventral segment is dull; there are a few punctures on the flanks of the prothorax, but none elsewhere.

Four specimens, all females. Three of them are old specimens much worn and broken, the fourth is very immature and shrivelled.

Hab. Oahu: Kawailoa gulch near the head of the left (or south) branch; from rocks in the stream, April 1893 (Perkins).

(2) *Anchotefflus elegans*, sp. nov.

Piceus, antennis, palpis pedibusque dilute rufis; capite vertice subobsolete punctato; thorace subquadrato, angulis posterioribus perobtusis, dense fortiterque punctato; elytris sulcatis, sulcis fortiter crenato-punctatis, interstitiis elevatis aequalibus. Long. $8\frac{1}{2}$ mm.

Head shining, eyes prominent, vertex with numerous subobsolete punctures on each side, in the middle the punctures less numerous and distinct. Thorax much narrower than the elytra, a little narrowed behind, hind angles obtuse, front angles slightly prominent, rounded; the surface with remarkably coarse, close punctuation. Elytra shining, each with eight or nine deep grooves extending quite from base to apex, the grooves are strongly punctured with incomplete punctures, and the interstices—differing little from one another—are rather narrow and strongly elevated; the inner portion of the basal margin is indistinct. Under-surface shining, with some large punctures about the sides, abdomen impunctate, the first ventral segment obliterated, the others only moderately deep.

Hab. Kauai: on the high plateau, August 1896 (Perkins).

PSEUDOBROSCUS, gen. nov.

Corpus convexum, elytrorum humeris fere nullis; prothorax angustus, immarginatus, ad angulum posteriorem seta erecta munitus; elytra margine basali fere nulla; tarsi posteriores minus graciles, supra glabri.

This genus is readily distinguished from all except *Derobroscus* by the unmargined edges of the thorax. From *Derobroscus* it is distinguished by the presence of a thoracic sense-seta, and by the robust build and comparatively thick tarsi. In general appearance it resembles *Mauna*, which however has margined sides to the prothorax.

(1) *Pseudobroscus lentus*, sp. nov.

Piceus, antennis, palpis pedibusque rufis; convexiusculus, sat nitidus; prothorace basin versus angustato impunctato, utrinque intra angulum posteriorem impression profunda, ante hanc seta erecta munito; elytris regulariter, profunde striatis, striis punctatis. Long. 9—10 mm.

Plate VI. fig. 5.

Head narrowed immediately behind the eyes; bearing no punctures except those furnished with the erect setae. Thorax without any raised margins except just at the hind angles, the front angles not in the least prominent, much narrower than the elytra, much rounded at the sides, and a good deal narrowed behind; the hind angles very obtuse; just within each of them a rather deep depression, and just in front of this a large puncture bearing a seta; the disc sometimes transversely wrinkled. Elytra narrow at the shoulders which are entirely indistinct; the rather deep striae are continued quite to the base, where traces of a basal margin exist; the sculpture is very regular on them, it consists of rather deep striae which are crenate rather than punctured. The under-surface without punctures.

HAB. Maui: Haleakala 10,000 ft., April 1894. Very rare (Perkins).

DEROBROSCUS, gen. nov.

Corpus angustum, elytrorum humeris nullis; prothorax angustus, immarginatus, absque setis erectis; elytra margine basali subobsoleta.

The species for which this genus is established, have a brilliant metallic colour on the upper surface. The narrow form is very remarkable, and in addition to the absence of a prothoracic seta, renders the members of the genus unmistakable.

(1) *Derobroscus micans*, sp. nov.

Angustus, supra viridescens, nitidus, antennis palpisque rufis, pedibus piceis; prothorace impunctato, utrinque ad angulum posteriorem fere in-impresso; elytris obsolete striatis, in disco seriebus foveolarum parvarum ornatis. Long. 8, lat. 2½ mm.

Plate VII. fig. 1.

Thorax narrow, rounded at the sides and greatly narrowed behind, the angles depressed and in no way prominent, the margins absent, except that the basal one exists for a short distance on each side; the surface is slightly wrinkled transversely and at the hind angles there is a very obscure depression bearing two or three punctures which however are more or less indistinct, so that, without careful looking, neither impressions nor punctures catch the eye. The elytra are very narrow, the shoulders altogether indistinct; the elytra are not really striate, but bear series of moderately large foveoles, which in some lights appear to be connected so as to give rise to an appearance of striation. The sculpture is much more obsolete at the apex and sides. The under-surface is black shining and polished, the first ventral suture extremely indistinct. The difference between ♂ and ♀ is extremely slight, except as to the setae of the last ventral plate.

It may be mentioned that the shrivelled, immature example does not exhibit the foveae on the elytra.

HAB. Oahu: Waianae mountains, lee-side, 2,000 ft., Feb. 1896, three specimens, two ♂, one ♀; an extremely immature example from the same locality, April 1892 (Perkins).

(2) *Derobroscus politus*, sp. nov.

Angustus, capite thoraceque politis, elytris viridi-auratis; nitidus, antennis palpisque rufis, pedibus piceis; prothorace impunctato, utrinque ad angulum posteriorem impresso-punctato; elytris in disco seriebus foveolarum profundarum munitis. Long. 8, lat. 2¾ mm.

Doubtfully distinct from *D. micans*, but with longer legs and antennae, with larger impressions on the elytra, and the shoulders not quite so obsolete. The colour of the elytra, if constant, would easily distinguish the two forms without an actual comparison of individuals of the two.

HAB. Oahu: Lanihuli ridge near Honolulu, 3,000 ft., 27th Oct. 1892 (Perkins, No. 42). One pair (♂ and ♀) "from leaves of trees."

(3) *Derobroscus solitarius*, sp. nov.

Angustus, capite thoraceque politis, viridi-micantibus, elytris auratis, antennis palpisque rufis, pedibus piceis; prothorace impunctato, utrinque impressione parva munito; elytris seriebus foveolarum munitis. Long. 8, lat. 2¾ mm.

Doubtfully distinct from the two preceding species, this unique example agrees with neither; it is of a more beautiful colour, and in general form agrees with *D. politus*; it has however the thorax rather longer and narrower behind, and bearing a small fovea at each hind-angle, and the foveoles on the elytra are not so large.

HAB. Oahu: Halemano, about 3,000 ft., under bark, Decr. 1892 (Perkins). One female.

BROSCONYMUS, gen. nov.

Corpus angustum, elytrorum humeris nullis; prothorax angustus, lateribus obsolete marginatis, margine perparum elevata, absque setis erectis; elytra margine basali subobsoleta.

Except for the fact that the thorax has the lateral margin distinct, the species has quite the appearance and characters of *Derobroscus*. There are a few species of *Disenochus* in which the prothoracic margins are more delicate than usual (*D. agilis* etc.). *Brosconymus* is not however allied to these; the thoracic margin in it is not strictly fine, but is due rather to an impressed line marking it off, than to its own elevation.

(1) *Brosconymus optatus*, sp. nov.

Angustus, capite thoraceque politis, vix viridi-micantibus, elytris auratis; nitidus, antennis palpisque rufis, pedibus piceis; prothorace impunctato, utrinque ad angulum posteriorem impresso; elytris in disco seriebus foveolarum mediocriter profundarum munitis. Long. 8, lat. $2\frac{3}{4}$ mm.

This resembles *Derobroscus solitarius* almost exactly; the thorax is however slightly shorter and scarcely so narrow behind, and the foveolae of the elytra are not quite so well developed.

HAB. Oahu: Halemano, under bark of Koa tree, January 1893, two male specimens (Perkins).

Prof. Thaxter found Laboulbeniaceae on one of these and labelled it No. 1215.

ANCHONYMUS, gen. nov.

Facies generis *Anchomeni.* Alae minutae. Thorax marginatus absque seta erecta. Elytris simpliciter striatis, margine basali arguta. Abdominis suturis haud profundis.

The Insect for which this genus is proposed resembles the Anchomenoid forms of *Disenochus*, so that it may readily be mistaken for *D. fractus*; it is distinguished therefrom by the absence of a thoracic seta. From *Anchotefflus* it differs in the delicate simple sculpture of the elytra. It is of metallic colour, and makes a first approach to the specialisation that has become so marked in *Brosconymus*. *Disenochus fractus* and *Anchonymus agonoides* make a distinct lead from an ordinary *Agonum* to the two remarkable Hawaiian genera *Derobroscus* and *Brosconymus*, and warrant us in supposing, without too great a stretch of the imagination, that these two aberrant genera may have arisen within the islands from ordinary forms of Anchomenides, such as are to be found in many parts of the world. It is, too, worthy of note that the two "leads" have some approximation in habits to the two forms that are highly specialised both in habits and sculpture.

(1) *Anchonymus agonoides*, sp. nov.

Niger, nitidus, gracilis, subdepressus, elytris laete viridibus, antennis palpis pedibusque rufis his interdum picescentibus; elytris regulariter striatis, interstitiis latis, planis. Long. 10 mm.

Plate VI. fig. 8.

This is readily distinguished from *D. fractus*, and most of the other Hawaiian allies, by the simple and regular striation of the elytra; the outer striae consist of series of fine, elongate punctures. The thorax is narrow, with the hind angles very obtuse; there is very little punctuation on the basal part. About fifty examples. There is not much variation in this series of specimens, but it is in the direction of *D. fractus*, so that the two forms approach rather closely, though the extremes are very distinct.

HAB. Maui: Haleakala, about 5000 ft., April 1894, under bark of Acacia (No. 250), nearly 50 specimens. One specimen in Oct. 1896 (No. 680).

This species is very much attacked by Laboulbeniaceae; Prof. Thaxter took specimens under the number 1229.

MAUNA Blackburn.

Mauna Blackb., Ent. Mo. Mag. XXI. p. 25.

So far as I can find, the unique species of this genus is distinguished from some of the *Disenochus* only by the slightly deeper ventral sutures, and by the peculiar form of the thorax, which is small and subovate. The species might be placed in *Disenochus* without making that genus much more heterogeneous than it is at present.

(1) *Mauna frigida*, Blackburn.

Blackburnia frigida Blackburn, Ent. Mo. Mag. XV. p. 157.
Mauna frigida id., op. cit. XXI. 1884, p. 25.
Plate VI. fig. 9.

There is a little variation in the large series of this species, but nothing remarkable. A specimen searched for Laboulbeniaceae is labelled No. 1221 by Prof. Thaxter.

HAB. Maui (Blackburn, Perkins): a single specimen only was found by Mr Blackburn, at an elevation of about 10,000 ft.: Mr Perkins procured a good many specimens about the crater of the great mountain, and also met with it at an elevation of 5—6000 ft., February, May, October (Nos. 374, 602, 612, 655, Perkins).

DISENOCHUS Blackburn.

Disenochus Blackburn, Ent. Mo. Mag. XV. 1878, p. 121 [nec Sharp, op. cit. XX. p. 218].

To the species for which this genus was originally established I now add several others, making it by far the most comprehensive genus of this division of Hawaiian Anchomenids. It is noteworthy that, although the facies shows so much variety that some of the forms look more like Pterostichini while others have the typical Anchomenoid appearance, I can yet find nothing but slight structural distinctions between the forms that are most different in appearance.

The characters distinctive of the genus are as follows. Wings reduced to mere vestiges about the length of the metanotum. Thorax margined; one seta on each side near the hind angle. Elytra with definite basal margin. Ventral sutures only moderately deep. Sculpture not extraordinarily coarse, though in *D. micantipennis* it is peculiar. Tarsi with the fourth joint not bilobed. The size does not exceed 10 mm.

The first five species are all excessively rare, so that I have not seen sufficient material to make me feel certain as to the forms being truly distinct species.

Species such as *D. fractus* may be considered as central forms for this first division of Hawaiian Anchomenids. I shall mention under *Mysticomenus* the fact that that genus appears central for the whole tribe. Those who think that Hawaiian Anchomenids are probably derived from a single form should imagine a transition from *Mysticomenus* to *Anchonymus agonoides.* We have no such transition existing. *Baryneus* and *Barypristus*, which would answer such a purpose in several respects, appear to have only an indirect relationship with either of the two forms.

(1) *Disenochus anomalus* Blackburn.

Disenochus anomalus Blackburn, l. c.

Distinguished from the allied species by the more ovate elytra, in conjunction with a narrower head and thorax, and by the striae of the elytra being less deep and much obliterated at the base, sides and apex.

Hab. Maui: Haleakala, 5000 ft., March 1894, under logs in the forest, two specimens (Perkins). Haleakala, 5000 ft., February 1878 (Blackburn).

(2) *Disenochus brevipes*, sp. nov.

Niger, antennis, palpis pedibusque rufis; robustus, capite lato, thorace transverso, basin versus angustato, angulis posterioribus obtusis, elytris subovatis, sat profunde striatis, striis omnibus integris, minus fortiter punctatis. Long. 10 mm.

Head large, with large impressions between the eyes, mandibles thick. Thorax broader than long, rounded at the sides and narrowed behind, front angles not at all prominent, surface impunctate, depressed near the obtuse hind angles. Elytra large, shoulders rounded, the sides but little sloped; rather deeply striate, and with the striae distinctly punctured; the interstices near the suture and base a little convex.

Hab. Molokai (Perkins): 4500 ft., two specimens 15th and 18th June 1893; one specimen at the same elevation in Sept. or Oct., all females. A fourth specimen, of the male sex, found in the same locality 18th June 1893, is rather smaller and narrower.

An *Acarus* or two were attached to one of the specimens.

(3) *Disenochus cephalotes*, sp. nov.

Niger, antennis palpisque rufis, pedibus rufo-piceis; robustus, capite lato, thorace haud transverso, basin versus angustato, angulis posterioribus obtusis, elytris subovatis, sat profunde striatis, striis omnibus integris. Long. 9½ mm.

Very near to *D. brevipes*, but with a rather narrower thorax, and less deeply striate elytra, the striae not punctured.

Hab. Maui (Perkins): West Maui mountains, 4000 ft., April 1894, one pair (♂♀).

(4) *Disenochus flavitarsis*, sp. nov.

Nigerrimus, antennis palpisque rufis, pedibus piceis tarsis dilute rufis; capite magno, thorace haud transverso, basin versus angustato, angulis posterioribus obtusis; elytris minus late subovatis, profunde striatis, striis punctatis. Long. 9 mm.

Readily distinguished from the preceding species by the darker colour, rather more slender form, and more pronounced elytral sculpture. The only two specimens found are male and female and are extremely similar; the female has the head slightly broader, which seems to be the case also in the other species of this group.

Hab. Molokai (Perkins): ♂, 4000 ft., vi. 96; ♀ Kalae, August 1893.

(5) *Disenochus agilis*, sp. nov.

Nigerrimus, antennis palpisque rufis, pedibus piceis tarsis rufis; capite sat lato, thorace haud transverso, basin versus angustato, angulis posterioribus obtusis; elytris vix subovatis, profunde striatis, striis punctatis. Long. 9 mm.

This species has the elytra less ovate than any of the preceding; it has also the thorax rather longer and narrower than *D. flavitarsis* and less rounded at the sides. It has therefore not quite the facies of the preceding members of the group, though in all structural characters it appears to be quite similar; the longitudinal impression on the middle of the base of the abdomen is particularly well marked. Only two individuals have been found. They are both males.

Hab. Maui (Perkins): one "Haleakala, 4500 ft., 28. iii. 1894"; the second, "Haleakala, 5000 ft., 1. iv. 1894."

(6) *Disenochus curtipes*, sp. nov.

Piceus, nitidus, antennis, palpis pedibusque rufis; capite magno, thorace transverso, basin versus fortiter angustato, lateribus vix rotundatis, versus angulos posteriores basinque subobsolete punctato; elytris profunde striatis, striis omnium obsoletissime crenatis, interstitiis subinaequalibus. Long. 6 mm.

This peculiar little insect is not allied to any other species; the head is large, the eyes prominent, though small; the hind angles of the thorax are very obtuse, the surface near them largely depressed, so that the lateral margin appears a good deal elevated behind. The strongly elevated striae have the alternate interstices a little more elevated; this is best seen by looking at the third and fifth close to the basal margin. Two male, one female, specimens.

In shape and proportions this much resembles *Atrachycnemis sharpi*, but differs much therefrom in sculpture and the very definite basal margin to the elytra.

Hab. Kauai (Perkins): 4000 ft., mountains above Waimea May 1894: October 1895; July 1896.

(7) *Disenochus aterrimus*, sp. nov.

Niger, antennis palpis tarsisque rufis; thorace transverso, basin versus leniter angustato, angulis posterioribus indistinctis; elytris suboblongis, profunde striatis, striis externis punctatis, internis plerumque impunctatis. Long. 10, lat. 3 mm.

Plate VI. fig. 6.

Thorax rather large, gently rounded at the sides, without posterior angles, the lateral margin but little more strongly elevated behind; impunctate, basal impressions indistinct. Elytra rather narrow, elongate and parallel-sided, deeply and regularly striate; the external striae, at least, are distinctly punctured, and sometimes all the striae are. The legs are long, pitchy black, the tarsi red.

This species varies a good deal as regards the depth of the elytral striae and their punctuation. So far as I can judge, the variation is partly connected with locality. The more deeply sculptured forms approximate a little to *D. erythropus*. Additional remarks on the variation are given below.

This species is extremely subject to the attacks of Laboulbeniaceae, some of the individuals bearing many specimens of these parasitic plants. Specimens taken from *D. aterrimus* were numbered 1218 by Prof. Roland Thaxter.

HAB. Kauai (Perkins): Halemanu in May, Koholuamano in April, Makaweli in January and February; the high plateau in August. The species was also met with in October.

We have a series of 91 examples of this species, and I have submitted them to a slight examination as to their variation. The method adopted was to divide them first roughly into three groups, viz. (1) a form I have called typical, the characters of which are that the form is rather slender, the black colour very deep, and the inner striae of the elytra not perceptibly punctured: (2) specimens I have called variant, as they depart more or less distinctly from (1) in the direction of (3): (3) var. a, specimens of large size, broad form, with the thorax rather broader and more narrow behind, the legs not so black, and the striae of the elytra comparatively strongly punctured. All the specimens were then compared with the three selected exponents and each specimen treated as belonging to one of the three groups in accordance with which one of the types it most resembled. The extremes of (1) and (3) look so different that I thought they might possibly be two species, but I am quite convinced that this is not the case. I give below the numbers found in each locality so far as our labelling and records of locality permit this to be determined. Koholuamano, IV. 95, without any number, 1 typ., 2 variant; Halemanu, V. 95, 1 without number, var. a; Koholuamano, IV. 95, No. 505, 2 variant; Koholuamano, 16. IV. 95, No. 508, 1 var. a; Halemanu, 4000 ft., V. 95, No. 514, 1 var. a; Koholuamano, 15. IV. 95, No. 516, 8 typ., 1 var. a; Koholuamano, 13. IV. 95, No. 517, typ. 4, variant 9; Koholuamano, IV. 95, No. 519, 1 variant; Koholuamano, IV. 95, No. 519, 1 variant; Koholuamano, IV. 95, No. 527, 1 variant; Koholuamano, 13. IV.

95, No. 529, 1 variant; Kauai, 4000 ft., x. 95, without any number, 3 variant; Kauai, high plateau, VIII. 96, No. 631, 1 var. a; Makaweli, 2500 ft., II. 97, No. 668, 11 var. a; Kauai, 4000 ft., VIII. 96, No. 676, typ. 13, variant 16, var. a 4; Kauai, high plateau, VIII. 96, No. 682, 1 typ.; Mts. Waimea, Kauai, 4000 ft., VI. 1894, without any number, 8 var. a, but this lot is, as var. a, aberrant, showing the characters of the variety in a variable manner, one very large specimen, for instance, having the striae but little punctured.

So far as it can be permitted to form an opinion from such an imperfect record, it would appear that there is considerable segregation of the forms. It is only under No. 676 that we find the forms indiscriminately mixed, and that number represents a month's collecting presumably in different localities of Kauai, so that no importance can be attached to it.

This examination shows that, for the study of variation, detailed records separating each day's work of the collector are desirable.

I may also mention that var. a—the extreme form in one direction—is much more variable than the extreme form in the other direction; no doubt it was this that led me to call the latter the typical form, as I did before I had made any analysis as to the variation and its segregation.

(8) *Disenochus erythropus*, sp. nov.

Niger, nitidus, antennis, palpis pedibusque rufis; prothorace basin versus fortiter angustato, elytris profunde striatis, striis omnibus fortiter punctatis. Long. 9—10 mm., lat. $3\frac{1}{4}$ mm.

This species is very highly polished, and is remarkable on account of the very regular and conspicuous sculpture of the elytra. The antennae are long and slender. The thorax is much narrower than the elytra, rounded at the sides and much narrowed behind, the position of the obtuse hind angle distinct, the surface very shining, with a rather deep depression near the hind angle. The elytra are broad, with deep, punctate striae, that are similar both at the sides and suture though the punctuation is absent from the apical portion, the interstices are broad; there is no sinuation of the sides near the tip.

Sixteen specimens.

HAB. Kauai (Perkins): Koholuamano, 4000 ft., in August and October.

(9) *Disenochus sulcipennis*, sp. nov.

Piceus, antennis, palpis pedibusque dilute rufis; thorace transverso, basin versus fortiter angustato, basi punctata; elytris profunde striatis, striis haud punctatis, sed subtiliter crenatis, interstitiis subangulatis. Long. 8—9 mm.

The sculpture of the elytra is rather peculiar in this species; there are deep striae, the sides of which slant so that, looked at in some directions, the striae seem broad and the interstices narrow, whereas in other light the reverse relations appear to exist. The thorax is short, very strongly narrowed behind, the side margin strongly elevated behind, the base punctate, deeply impressed near each hind angle. The abdomen longitudinally impressed at the base in the middle. About 30 specimens. The species apparently varies but little.

Hab. Kauai (Perkins): Makaweli, 2000—2500 ft., in January and February, Mts. Waimea and Halemanu, 4000 ft., May.

(10) *Disenochus fractus*, sp. nov.

Niger, nitidus, elytris viridi- vel aeneo-micantibus, antennis palpisque rufis, pedibus piceo-rufis; thorace ad basin et angulos posteriores subtiliter rugoso-punctato; elytris oblongo-ovatis, profunde punctato-striatis, striis hic inde plus minusve interruptis. Long. 10 mm.

Var. a. Paulo latior et robustior, supra aeneo-micans, thorace latiore, basin versus fortiter angustato, elytris magis ovatis.

A rather elongate and slender insect. Thorax a good deal narrower than the elytra, much rounded at the sides, and distinctly narrower at the basal than at the front angles; a large depression at the obtuse posterior angles, these depressions rugose-punctate, the surface a little in front of them and between them also rather indistinctly punctate. The elytra are deeply sculptured in a rather peculiar fashion, appearing in some cases to possess series of punctures two or three or more of which are joined to form portions of a stria, in other cases the striae are less interrupted: the outer striae or series of punctures are always strongly marked, and the impressions on the eighth stria are always large, even if vague. About 50 specimens.

The species varies in the direction of the variety diagnosed above, a good many specimens partaking more or less of the characters alluded to; one or two specimens approximate to *Anchonymus agonoides*, and can scarcely be distinguished therefrom except by the presence of the thoracic seta, and a slightly deeper, more interrupted striation of the elytra.

Hab. Maui (Perkins): Haleakala, most of the specimens in Oct. 1896, 4000—5000 ft. (Nos. 661, 680); a few specimens were also met with in April and May (Nos. 250, 597, 618, 620, 622).

Specimens of Laboulbeniaceae were taken from this species by Prof. Thaxter as No. 1222.

(11) *Disenochus longipes*, sp. nov.

Elongatus, angustus, nigro-piceus, antennis palpis pedibusque sordide rufis; haud nitidus; prothorace ad basin et angulos posteriores rugoso-punctato; elytris oblongo-ovatis, profunde punctato-striatis. Long. 10 mm.

Closely allied to *D. fractus*, but distinguished by the dull surface, the want of metallic colour, and by the remarkably narrow, elongate thorax; the striae of the elytra are deeper and broader, and the punctures in them larger. One male specimen.

HAB. Molokai (Perkins): 4000 ft., 8. VI. 1893.

(12) *Disenochus micantipennis*, sp. nov.

Piceus, capite nigro, antennis palpis pedibusque flavis; thorace dense rugoso-punctato; elytris inaequalibus, striatis, striis minus argute sculpturatis, interstitiis 5°, 7°-que costato-elevatis, spatio inter suturam et interstitium quintum longitudinaliter depresso, interstitiis 2°, 3°, 4° deplanatis, micantibus. Long. $7\frac{1}{2}$—$8\frac{1}{2}$ mm.

A very peculiar species having no near ally. Head shining black, impunctate, vertex more or less distinctly depressed in the middle. Thorax uneven, densely and coarsely sculptured, much narrowed behind, base a good deal rounded, hind angles distinct, slightly turned up. Elytra piceous, with the margins and apex more or less dilute, acuminate behind, the sculpture very peculiar, the interstices near the suture flat and with a glassy appearance, the post-humeral interstices more or less costate, the external grooves coarsely punctate. Under-surface piceous, becoming more dilute posteriorly so as to be flavescent behind.

A good series of about 90 specimens has been secured. They do not show much variation.

HAB. Kauai (Perkins); Mts. Waimea, 4000 ft., in April and May 1894; Koholuamano, 4000 ft., April and May 1895.

CHALCOMENUS, gen. nov.

Alae magnae, tantum parte apicali subobsolescente (Plate VI. fig. 22). Prothorax marginatus, ad angulum posteriorem seta erecta munitus. Tarsi posteriores filiformes articulo penultimo nullo modo bilobato.

This I distinguish from *Disenochus* on account of the large wings, of which only the apical portion is notably reduced in size. *Colpodiscus* has the hind tarsi strongly bilobed, *Mysticomenus* has no prothoracic seta. The shoulders of the after-body are better developed than they are in *Disenochus*, but the metasternum is but little longer.

(1) *Chalcomenus corruscus*, Er.

Anchomenus corruscus Erichson, Acta Ac. German. 1834, XVI. Supp. p. 223.

Niger, nitidus, supra aeneus, antennis, palpis pedibusque testaceis, his femoribus (geniculis exceptis) fuscis, antennis extrorsum obscurioribus; prothorace angusto, basi recta, lateribus sinuatis, angulis posterioribus discretis, obtuse rectis, ad angulos posteriores impresso et punctato; elytris profunde striatis, striis internis fere omnino impunctatis, externis, praesertim basin versus, fortius punctatis. Long. 8—9 mm.

There can be no doubt that this is Erichson's species. It varies in colour, old specimens having the brassy surface tarnished, and more or less black. The species has more the facies of European forms than have most of the other Hawaiian Anchomenides. About twenty specimens have been found.

HAB. Oahu (Erichson, Perkins): Kaala mountains, 2000 ft., in Dec. 1892; near Nuuanu Pali, Nov. 1892, one specimen.

(2) *Chalcomenus molokaiensis*, sp. nov.

Niger, nitidus, supra aeneus, antennis fuscis, basi tibiisque testaceis; prothorace sat lato, transverso, basi subrotundata, angulis posterioribus minus discretis, perobtusis; elytris profunde striatis, striis ad basin punctatis. Long. 8½—10 mm.

Very closely allied to *C. corruscus*, but distinguishable in all the individuals by the rather different prothorax. The width in comparison to the length is fully as much as five to four; in correlation with this the base is a little more rounded and the sides less sinuate behind, so that the hind angles are more indistinct and obtuse. There are other slight but variable distinctions, although the character mentioned is the only one that justifies the distinction of the two forms.

HAB. Molokai: 3000 ft., 12. v. 1893 (Perkins). About fifty specimens.

(3) *Chalcomenus costatus*, sp. nov.

Niger, supra vix nitidus, antennis, palpis pedibusque testaceis, elytris vix subaenescentibus; prothorace rugoso, angulis posterioribus fere rectis paululum obtusis; elytris irregulariter sculpturatis, subsulcatis, sulcis punctis magnis, saepius obsoletis, munitis, interstitiis quibusdam costatis. Long. 8—9½ mm.

Plate VI. fig. 22, wing.

This distinct species is very readily recognised, the peculiar dull surface of the elytra, with some of the interstices elevated so as to be angular in cross section while the depressed portions bear a coarse obsolete sculpture, being characteristic. It is apparently sometimes found in company with *D. micantipennis*, and has several points in common therewith, but *D. micantipennis* may be distinguished at once by the flat and glass-like surface of the second, third and fourth interstices. In *C. costatus* these interstices are dull and the third is elevated and forms a costa. There is not much variation in the large series of examples, though in some of them the sculpture is more irregular than it is in others.

HAB. Kauai (Perkins): Mts. Waimea, 4000 ft., May and June, 1894 (Nos. 258, 262, 265, 267, 271); Koholuamano, in April (Nos. 508, 516, 519, 527, 529); Kauai, 4000 ft., Oct. 1895 (No. 551); Kauai, high plateau, 4000 ft., many specimens, August and October, 1896.

Barypristus Sharp.

Barypristus Sharp, Ent. Mo. Mag. xx. p. 217.

We may now, after separation of *B. sharpi*, add to the characters of this genus; metasternum short; wings vestigial, being small and not adapted for flight, though always longer than the metanotum.

This is the most important of the genera of this division of the Hawaiian Anchomenids, in which the wings exist in such a state as to lead us to suppose that they may formerly have been larger and functionally perfect. In most of the other genera the wings are either reduced to small vestiges or are so large as to enable flight to be executed.

The three genera, *Mauna*, *Disenochus* and *Barypristus*, have very similar characters, so that it is difficult to distinguish them by a definition. *Barypristus* has however a totally different shape and appearance from the other two; the individuals are much larger, and the vestigial wings are longer than the metanotum. There is no form intermediate.

(1) *Barypristus rupicola*, Blackburn.

Anchomenus rupicola Blackb., Ent. Mo. Mag. xv. p. 122.

Plate VI. fig. 23, varieties of vestigial wings.

Mr Perkins met with this species about half-way up the mountain in April and May, and procured a good series about the crater of Haleakala in October. It never occurs in the forest, but is found under stones outside. It varies a good deal in size, and a little in the width of the thorax. I have seen about 200 specimens.

Hab. Maui: Haleakala, 4—10,000 ft. (Blackburn, Perkins).

(2) *Barypristus incendiarius*, Blkn.

Anchomenus incendiarius Blackburn, Ent. Mo. Mag. xvi. p. 105.

Plate VI. fig. 7, ♀ individual: fig. 21, vestigial wing.

This is the largest Hawaiian Carabid and appears to be very rare. It occurs under the bark of Koa and oviposits in the chinks of the bark.

Although closely allied to *B. rupicola*, the species is certainly distinct. It is rather larger, has the elytra a little straighter at the sides and more acuminate at the tip, and slightly more deeply striate. The front angles of the thorax are more broadly rounded. The vestigial wings are 6 mm. long, whereas in *B. rupicola* they are usually less than 3 mm. and surpass that dimension only to a slight extent even in the largest examples.

Hab. Hawaii (Blackburn, Perkins): Mauna Loa, 4000 ft. (Blackburn); Kilauea in August (Perkins).

Baryneus, gen. nov.

Alae magnae, perfecte explicatae, metasternum elongatum. Tarsi posteriores articulo quarto haud bilobato. Elytra striata, nullo modo rugosa.

This genus is established for *Barypristus sharpi*, Blackburn. It has the wings of maximum size, and the metasternum correspondingly elongate, while the general shape and build is that of a winged Anchomenid. From *Colpodiscus* it is separated by the unlobed fourth tarsal joint (Plate VI. fig. 15). The other characters are those of *Barypristus*. The thoracic margin is largely developed and there is a conspicuous seta on the lateral margin, the hind angles being completely rounded. The sculpture of the elytra is entirely destitute of peculiarity, the impressions on the ninth interstice are small and numerous, and the basal margin well developed.

Colpodes macropterus Chaud. from New Zealand is in appearance similar to *Baryneus*, but has sculptured tarsi and two thoracic setae on each side, as is usual in Anchomenides.

(1) *Baryneus sharpi*, Blackburn.

Anchomenus sharpi Blackburn, Ent. Mo. Mag. xv. p. 122.
Barypristus sharpi id., Tr. Dublin Soc. (2) III. 1885, p. 213.
?*Colpodes octocellatus* Karsch, Berlin. Ent. Zeitschr. xxv. 1881, p. 3, pl. I. fig. 3.

Plate VI. fig. 2, individual with elytron and wing expanded.

This is very distinct from *Barypristus incendiarius* on account of its shorter thorax and more slender legs. It is intensely black in colour. The wings are perfectly developed and are 16 mm. long, and 6 mm. broad in a specimen the elytra of which are 9½ mm. long.

Hab. Maui (Blackburn, Perkins): Haleakala, 3—5000 ft. A small series was found by Mr Perkins in April and May, 1894. The habits are the same as those of *Barypristus incendiarius* in Hawaii.

Colpodiscus Sharp.

Colpodiscus Sharp, Ent. Mo. Mag. xx. p. 217.

Anchomenus lucipetens Blackb. may be taken as the type of this genus. The second species I reluctantly associated with it has the tarsi grooved, and belongs therefore to a different division of the Anchomenides according to the system I have here adopted (cf. *Colpocaccus*).

The ample wings, the strongly lobed foot (Plate VI. fig. 16), and the single thoracic seta, make this a very easily recognised genus.

(1) *Colpodiscus lucipetens* Blackburn.

Anchomenus lucipetens Blackb., Ent. Mo. Mag. XX. p. 217.

Colpodiscus lucipetens Sharp, Ent. Mo. Mag. XX. 1884, p. 217; Tr. Dublin Soc. n. s. III., pl. IV. fig. 3.

Plate VI. fig. 16, *a* and *b* upper and under surfaces of hind foot.

A good series has been found of this very distinct species. It varies but little. The four specimens from West Maui found by Brother M. Newell and Mr Perkins have the head rather darker in colour than any of the numerous specimens from Hawaii, though there is some variety in this respect amongst the individuals from the last-named locality.

A good many of the specimens seem to be infested by Laboulbeniaceae, especially on the under surface. Prof. Thaxter took specimens under the number 1217.

HAB. Hawaii (Blackburn, Perkins).—Maui (Perkins, Newell). Olaa, in June and September, Kilauea in August. West Maui, Jao Valley, in September.

(2) *Colpodiscus lahainensis*, sp. nov.

Subdepressus, niger, nitidus, antennis, palpis pedibusque testaceis, prothorace ad latera dilute piceo; elytris elongatis, striatis, striis nullo modo punctatis. Long. 15½ mm.

Very different from *C. lucipetens* by the elongate form, dark colour, and more oblong afterbody. It has more resemblance to *Baryneus sharpi*, from which it is strongly different on account of the large lobes of the fourth tarsal joint. Thorax not transverse, straight at the base, sides much raised, the intermarginal depression broad, even in front; without any punctuation. Elytra long, with nine striae bearing no trace of punctures, the inner striae fine but very definite, the seventh stria slighter, obsolete in front.

Described from two very immature examples, so that the full coloration is somewhat uncertain. But the species is very distinct from any other, and is certainly congeneric with *C. lucipetens*.

HAB. Maui (Perkins): West Maui, Jao Valley, August, 1894.

PRODISENOCHUS, gen. nov.

Disenochus Sharp, Ent. Mo. Mag. XX. (1884), p. 218; nec Blackburn, op. cit. XV, (1878), p. 121.

The genus *Disenochus* was proposed by Blackburn for *D. anomalus*; subsequently he added *D. terebratus* as a second species; and it was on a specimen of the latter—I having never seen the typical species—that my remarks on the generic characters were based. The two genera are by no means closely allied. *Prodisenochus* is the only genus of this division of the Hawaiian Anchomenides that has two setae on each side of the prothorax. It is also remarkable on account of the three or four large foveae close to the lateral margin of the elytron. These foveae are somewhat irregular in size and number. On the inner face of the elytra they appear as transparent spaces surrounded, each one, by a black ring.

(1) *Prodisenochus terebratus* Blackb.

Disenochus terebratus Blackb., Ent. Mo. Mag. XVII. p. 227.

Promecoderus fossulatus Karsch, Berlin. Ent. Zeitschr. XXV. (1881), p. 4, pl. I. fig. 5.

This is one of the rarest of the Hawaiian Carabidae. It has very little of the appearance of an Anchomenid, and it is scarcely a matter for surprise that Karsch should have located it in another tribe. The species varies a good deal in the sculpture of the elytra. It may be known by the peculiar fossae at the sides of the elytra, and by the two thoracic setae. It is shining, intense black in colour of the body, the elytra have the peculiar broken striation, characteristic of several forms of Hawaiian Carabidae, they are not at all sinuate or truncate at the apex, the wing rudiments are small, but extend to the hind margin of the metanotum.

HAB. Maui (Blackburn, Finsch, Perkins): Haleakala, about 4000 ft., in February and April.

APTEROMESUS, gen. nov.

Alae parvae sed haud omnino obsoletae; prothorax absque setis erectis; tarsi articulo quarto bilobato, subtus piloso.

I establish this genus for an extremely interesting form in which the wings are present, and of considerable size though merely useless vestiges. In this respect it resembles *Barypristus*, though totally different in appearance therefrom. It is nearest to *Mysticomenus*, from which it is distinguished by the vestigial wings and by the shorter metasternum. It has the peculiar coloration of *Mysticomenus*, but is very different in sculpture, the striae of the elytra having nearly disappeared to give place to shallow grooves, the interstices of which are slightly elevated along the middle.

The vestigial wings (Plate VI. fig. 20) have not the same form as those of the genus *Barypristus*, being comparatively longer and narrower, nearly half as long as the wing-cases, with a strong thick costa, and also a thick subcostal nervure, without any chitinisation of the tip of the wing.

This genus has to a considerable extent the appearance of a *Metromenus*, and was at first supposed by me to belong to our second division of Anchomenides.

(1) *Apteromesus maculatus*, sp. nov.

Testaceus, parum convexus, capite fuscescente, elytris irregulariter fusco-variegatis; his subsulcatis, interstitiis minus alte angulariter elevatis. Long. $5\frac{1}{2}$—$6\frac{1}{2}$ mm.

Plate VI. fig. 20, vestigial wing.

This cannot be confounded with any other form, as it possesses the peculiar coloration of the elytra found in the genus *Mysticomenus*, and in addition to this has the fourth tarsal joint bilobed as in *Metromenus palmae*; to these peculiarities it adds another, namely, the angular elevation of the interstices found in some other species of Kauai Carabidae. The antennae and legs are pale yellow. The thorax is short, transverse, narrowed behind, with the hind angles completely rounded. The elytra are nearly rounded at the tips, only slightly sinuate; they have a somewhat irregular surface, and the middle of each interstice is slightly raised so as to give rise to a faint appearance of angularity in a transverse section. The maculation is very irregular, indeed it is not alike in the two wing-cases of an individual. The tarsi are short and grooves on them entirely absent.

We have received a series of about 60 specimens of this species. It does not vary much except in the markings of the elytra, and that the disc of the thorax is fuscescent in a variable degree.

HAB. Kauai: 4000 ft. on several occasions (Perkins).

MYSTICOMENUS, gen. nov.

Corpus subdepressum, thorax marginatus, setis erectis carens. Alae perfecte explicatae. Elytra ad basin argute marginata, ad apicem leviter sinuata. Tarsi articulo quarto bilobato, subtus densissime piloso. Palpi labiales breves.

The two species of this genus are very remarkable on account of the coloration of their elytra; this consists of a very irregular mixture of yellow and dark marks, the marks not being the same on any two specimens or on the two elytra of the same individual. In *M. tibialis* the yellow colour is more extensive than the dark colour, in *M. mysticus* the reverse is the case.

Mysticomenus is a very isolated genus. It resembles *Metromenus* in general appearance, but the tarsi have no trace of grooves, and the large lobes of their fourth joint are densely clothed with fine hair beneath, as in *Colpodiscus*.

Those who may think that the Hawaiian Anchomenides have probably been derived from a single form introduced into the islands long ago might find this original ancestor in some form like *Mysticomenus*.

(1) *Mysticomenus tibialis*, sp. nov.

Subdepressus, haud nitidus, flavescens, elytris irregulariter fusco-signatis, subobsolete striatis. Long. 6½ mm.

Mas, tibiis intermediis et posterioribus sinuatis.

Head broad, eyes prominent, placed near the thorax. Thorax broader than long, slightly narrowed behind, not much rounded at the sides, rather flat, impunctate. Elytra broad, very slightly striate. Legs pale yellow.

The smaller extent of the dark pigment on the elytra readily distinguishes this from the following species.

HAB. Oahu (Perkins); Waianae mounts. 2000 ft., February 1896. A small series.

(2) *Mysticomenus mysticus*, Blackb.

Colpodes mysticus Blackburn, Ent. Mo. Mag. XIV. 1877, p. 147.

Metromenus mysticus Sharp, Tr. Dublin Soc. n. s. III. pl. IV. fig. 2.

HAB. Oahu (Blackburn): Waianae mountains, 2000 ft., July. "Very local, but not rare." I have seen only two specimens.

DIVISION 2. Hind tarsi more or less distinctly grooved (Plate VI. fig. 13).

The grooving of the tarsi is in all the Hawaiian forms obscure, and in some of them it requires a very rigorous examination for its detection. Nevertheless, it makes a fairly satisfactory division of the Anchomenides. In many exotic forms the sculpture of the tarsi becomes very perfect and remarkable. Possibly it may be a character that has become diminished in the Hawaiian islands. In that case it is quite likely that *Mysticomenus* and *Apteromesus* of Division 1 are forms that formerly possessed the grooves but have now lost them. Their general facies is that of members of Division 2, and if they be excepted, this character—slight as it is in Hawaii—makes a perfectly natural division of the Hawaiian Anchomenides. The character is easiest seen on the outer aspect of the basal joint of the hind tarsus, and in some cases it can only be detected there, and in the form of a slight longitudinal impression near the base of the joint.

The genera are easily tabulated as follows:

Fully winged .... *Colpocaccus.*
Unwinged,
  Mandibles somewhat elongate, *Mecomenus*, *Mecostomus.*
  Mandibles short {
    no thoracic seta .... *Metromenus.*
    1 thoracic seta, near hind angle .... *Atelothrus.*
    1 thoracic seta, near middle .... *Mesothriscus.*
    2 thoracic setae, 1 near hind angle, 1 near middle .... *Platynus.*

COLPOCACCUS, gen. nov.

Dyscolus, part, Blackburn, Ent. Mo. Mag. XIV. 1877, p. 143.

Colpodiscus, part, Sharp, op. cit. XX. 1884, p. 217.

Alae perfecte explicatae, metasternum sat elongatum. Prothorax utrinque seta unica, ad angulum posteriorem sita, munitus. Tarsi posteriores ad margines sulcati; articulo quarto parvo, emarginato, haud bilobato.

The sculpture of the tarsi is not so strongly marked in most of the species of this genus as it is in *Mesothriscus* and *Atelothrus*, but it is present always in the form of a longitudinal groove on the outer side of the first and second joints, and may also be detected on the interior side of these joints as a flattening or compression of the surface, but there is no trace of a raised line along the middle. In the Kauai species, however, the grooves are very distinct and the tarsi flattened so that both grooves are visible on the upper face of the tarsus. Hence there are two well-marked groups in *Colpocaccus*. The structure of the feet thoroughly distinguishes the genus from *Colpodiscus*, in which I formerly very reluctantly located *C. tantalus*.

(1) *Colpocaccus tantalus*, Blackburn.

Dyscolus tantalus Blackburn, Ent. Mo. Mag. XIV. 1877, p. 147.
Colpodiscus tantalus Sharp, op. cit. XX. 1884, p. 217.

Readily distinguished from the other species by the deep black colour, even the inflexed margin of the elytra being deeply pigmented. The middle of each femur is always more or less infuscate. The thorax is somewhat narrower and longer than it is in the other species and is usually darker in colour, but this varies a little. A very fine series of between three and four hundred specimens has been secured by Mr Perkins. Though apparently the most common of the Carabidae of Oahu, it varies but little.

Hab. Oahu, Blackburn, Perkins. Found in several localities, both in the Waianae and Kaala ranges: very abundant at Halemano in December and January.

(2) *Colpocaccus hawaiiensis*, sp. nov.

Piceus, nitidus, subtus testaceo-variegatus, antennis, palpispedibusque flavis, his plus minusve infuscatis, elytrorum margine elevata ferruginea; thorace transverso, angulis posterioribus perparum argutis; elytris leviter striatis. Long. corp. 8—9 mm.

In this species the inflexed margin of the elytra is always bright yellow, and the raised margin shews red or yellow on the upper surface. The femora are always somewhat infuscate, and the thorax has the hind angles a little less marked than the other species.

Mr Perkins has secured a series of about 200 specimens of this species. It varies somewhat more than *C. tantalus* does, but there is no doubt about even a single specimen, slight as are the characters.

Hab. Hawaii (Perkins): Kona and Kilauea from June to September.

(3) *Colpocaccus lanaiensis*, sp. nov.

Niger, prothorace picescente, antennis, palpis pedibusque flavis, elytrorum margine inflexa ferruginea; thorace transverso, angulis posterioribus obtusis, sat argutis; elytris minus leviter striatis. Long. corp. 8—9 mm.

Very closely allied to *C. hawaiiensis*, but darker in colour, with the legs paler (being nowhere infuscate), and with the thorax more transverse and less rounded at the posterior angles.

These characters distinguish satisfactorily a large series of about 70 examples from Lanai. In addition, I assign to the same species a small series from Molokai and Maui (nine or ten examples from each island). The specimens from these two islands have the thorax decidedly a little narrower, and have not the shape of this part so characteristic as in the Lanai specimens. But I am not able to detect anything to lead me to suppose that they belong to a really separate form.

HAB. Lanai, Maui, Molokai (Perkins). Lanai, 2—3000 ft., in January, June and July. Molokai mountains in August. West Maui mountains, 4000 ft., in April.

(4) *Colpocaccus apicalis*, sp. nov.

Fusco-ferrugineus, nitidus, capite elytrisque nigricantibus, his subtiliter striatis, limbo ad apicem late testaceo. Long. corp. 8½—9 mm.

Closely allied to *C. hawaiiensis*, but readily distinguished by the broadly yellow tip of the elytra: it is also a somewhat broader insect, with more transverse thorax. From *C. posticatus* it can be known at a glance by the delicate striation of the elytra. Most of the small series of specimens are immature.

HAB. Hawaii, Perkins and Koebele. Kilauea and near Hilo in August, apparently rare.

(5) *Colpocaccus posticatus*, sp. nov.

Piceus, minus nitidus, antennis palpisque pedibusque flavis; elytris limbo late ad apicem testaceo, profunde striatis; corpore subtus variegato. Long. 7—8 mm.

Easily distinguished from all the other species except *C. marginatus* by the deep striation of the elytra. The colour is a little variable, but is less pigmented with black than any of the other species. The thorax is strongly transverse, and the posterior angles are sharply marked, though slightly obtuse.

HAB. Kauai, Perkins. Koholuamano in April. Mts. Waimea in May. Rare.

(6) *Colpocaccus marginatus*, sp. nov.

Piceus, antennis, palpis pedibusque flavis, elytris anguste ferrugineo-marginatis, profunde striatis; corpore subtus variegato. Long. corp. 8 mm.

Doubtfully distinct from *C. posticatus*, though wanting the broad yellow apex of the elytra. The thorax is a little narrower.

HAB. Kauai, Perkins. Very rare: found in the same localities as *C. posticatus*.

ATELOTHRUS, gen. nov.

Alae vestigiales. Prothorax utrinque seta unica ad angulum posteriorem sita munitus.

In the highly aberrant *A. transiens* the thoracic setae are very rarely present, but the pits of their insertion exist.

(1) *Atelothrus politus*, sp. nov.

Elongatus, angustus, nitidus, niger, antennis, palpis pedibusque flavis, elytrorum margine laterali angustissime rufescente, thorace plus minusve picescente, abdomine flavo-variegato; elytris sat profunde striatis, striis ad basin discretis, interstitiis politis. Long. 8 mm.

Closely allied to *A. erro*, but readily distinguished by the polished elytra, the striae of which are deeper and not so effaced at the base. The thorax is a little sinuate at the sides behind; the hind angles would be almost rectangular were it not that the base is sloped where it joins the sides, so that the angles are markedly acute; the sides behind are but little elevated.

HAB. Maui (Perkins); Haleakala, 5000 ft., in March, April and May 1894, and in September and October 1896. Some of the specimens are described as found under bark of *Acacia*.

(2) *Atelothrus erro*, Blackburn.

Anchomenus erro Blackburn, Ent. Mo. Mag. XV. 1877, p. 121.

Platynus planus Karsch, Berlin. ent. Zeitschr. XXV. 1881, p. 2.

This is closely allied to *A. politus* as already mentioned, but is readily identified by the peculiar dull surface of the elytra, due to a dense minute sculpture, and by the less deep striation of the elytra, all the striae being very fine at the base, and some indeed of the outer quite effaced there. We have received about 300 specimens of *A. erro*, and there can be no doubt it is distinct from that species and not merely a dimorphic form, as there are slight differences in form and colour; these, however, are not so constant as the diagnostic characters mentioned.

HAB. Maui (Blackburn, Perkins); Haleakala, 4—5000 ft., in March, April and May, and in September and October. The localities and dates are the same as those for *A. politus*, and if these two closely allied species do not actually live together, they must be very close neighbours.

(3) *Atelothrus limbatus*, sp. nov.

Elongatus, angustus, nigro-piceus, antennis, palpis pedibusque flavis; prothorace marginibus ferrugineis, angulis posterioribus leviter obtusis, parum rotundatis; elytris limbo (ad apicem late) testaceo-ferrugineo; abdomine testaceo-variegato. Long. 8¼ mm.

Antennae very long (just over 5 mm.), basal joints yellow, those beyond somewhat darker. Head as broad as the thorax. Thorax narrow, much rounded at the sides and narrowed behind, hind angles obtuse and a little rounded. Elytra blackish with a definite pale margin; this marginal band is very broad at the tip, though narrow at the shoulder. The apex is but little sinuate. Fourth joint of hind foot not lobed, its angles, however, are acute and somewhat produced.

Three specimens only have been found of this insect in its typical form.

Var.? *concolor* n. var. Paulo latior fere unicolor, ferrugineus, prothorace angulis posterioribus minus obtusis. Three specimens.

Hab. Maui (Perkins, Koebele); West Maui mountains, 4000 ft., April 1894, the type form and var. *concolor*. Lahaina, 3000 ft., Koebele.

(4) *Atelothrus longicollis*, sp. nov.

Major, elongatus, ferrugineus, nitidus, antennis, palpis pedibusque flavis; prothorace elongato, nitido, lateribus anterius parum elongatis, parte basali elongata, angulis posterioribus acute rectis; elytris sat profunde striatis, ad apicem parum sinuatis. Long. corp. 9 mm.

Distinguished from the var. *concolor* of *A. limbatus* by the more elongate thorax and the sharp hind angles. The small series of eight examples varies a good deal, and it is possible there may be two species among them; but I think it is more probable that all belong to one variable species.

Hab. Maui (Perkins). Haleakala, 5000 ft., March and April 1894, and at 4000 ft. in May 1896. Apparently it occurred only in single examples.

(5) *Atelothrus constrictus*, sp. nov.

Angustus, convexiusculus, niger, nitidus, antennis, palpis pedibusque flavis; prothorace angusto, basi recta, angulis posterioribus subrectis minutissime obtusis; elytris anguste ovatis, sat profunde striatis, apice parum sinuato. Long. corp. 7—7½ mm.

The rather narrower and more convex form, and especially the narrower thorax, readily distinguish this species from its congeners of similar size, such as *A. longulus*. The thorax is a good deal narrowed and sinuate behind, but in front the sides are less rounded than usual. The antennae and legs are long and slender, the fourth joint of the hind foot produced under the fifth, but not bilobed.

Hab. Molokai (Perkins).

(6) *Atelothrus longulus*, sp. nov.

Sat elongatus, nitidus, niger, antennis, palpis pedibusque flavis; prothorace basin versus minus fortiter angustato; elytris sat profunde striatis, apicibus parum sinuatis, sat prolongatis. Long. 7½ mm.

Closely allied to *A. politus*, but rather smaller, with the elytra only obsoletely sinuate at the tip, and the abdomen not variegate in colour. Almost equally close to *A. depressus* and *A. gracilis*, but with the elytra more prolonged at the tips, and the fourth joint of the hind tarsus not bilobed, but formed as in *A. politus*. Three specimens.

HAB. Maui (Perkins). The same doubt exists as to the locality of this species as does to that of *L. gracilis*; but the habitat is probably "West Maui mountains, 4000 ft., IV. 1894," one of the specimens bearing that label.

(7) *Atelothrus stenopus*, sp. nov.

Nigerrimus, politus, pedibus fuscis, antennis palpisque rufo-obscuris; prothorace sat elongato, basin versus sat angustato; elytris sat profunde striatis, apice modice sinuato; tarsis posterioribus gracilibus, articulo quarto haud lobato. Long. 8 mm.

This is not likely to be confounded with any species except *A. filipes*, but *A. stenopus* is a little larger and has a decidedly longer prothorax. Only two specimens, both males, have been found.

In 1900 Mr Perkins found on Haleakala, 3000 ft., a third specimen that agrees with the two types so well that I cannot treat it as distinct, although it has no seta on the thorax and is therefore to all intents and purposes a *Metromenus*. There is no species of *Metromenus* to which this specimen can be assigned, and therefore I at present treat it as an aberration or sport of *A. stenopus*.

HAB. Maui, Perkins. Haleakala, 5000 ft., April 1894, May 1895.

(8) *Atelothrus filipes*, sp. nov.

Nigerrimus, politus, pedibus fuscis, antennis rufo-obscuris, basi palpisque dilutioribus; prothorace minus elongato, basin versus minus angustato; elytris sat profunde striatis, apice parum sinuato; tarsis posterioribus gracilibus, articulo 4to haud lobato. Long. 6½—7 mm.

The thorax is comparatively little narrowed behind; it is slightly sinuate at the sides behind, the hind angles a little obtuse and rounded, the side-margin fine, but little elevated. The colour of the elytra is very black with a very slight green reflection. Compared with the dark-legged variety of *A. depressus*, the species is readily distinguished by the shape of the thorax, which is less elongate and less narrowed behind, and by the rather more slender hind legs. Twenty-two specimens.

HAB. Lanai (Perkins). Halepaakai, July 1894; Mts. Koele, Jan. and Feb. 1894.

(9) *Atelothrus hawaiiensis*, sp. nov.

Nigricans, corpore subtus, antennis, thoraceque rufis, illarum basi, palpis pedibusque flavis; thorace basin versus angustato, haud sinuato, angulis posterioribus obtusis; elytris margine laterali flavo, profunde striatis, ad apicem sat profunde sinuatis. Long. corp. 6½ mm.

We have only one specimen—a male—of this obscure insect, and some doubt exists as to its belonging to the genus *Atelothrus*, as there is a fovea for a thoracic seta at the left angle only of the thorax; if this is not really a fovea, but due to a small piece being chipped out of the thoracic margin by some accident, the specimen will be referable to the genus *Metromenus*. As the supposed fovea exists in exactly the normal situation, it is probable the individual is really correctly placed in *Atelothrus* and I describe it, notwithstanding the doubt that exists about it, because it indicates an extension of the genus to the island of Hawaii.

The species is not at all closely allied to any other *Atelothrus*, but is extremely similar to *Mesothriscus hawaiiensis*, from which it differs however by its shorter thorax, which also is rather broader at the base. It has but little resemblance to *A. filipes*, the hind tarsi being considerably thicker, though the fourth joint is not in the least lobed.

Hab. Hawaii (Perkins). Kilauea, August 1896. No. 656.

(10) *Atelothrus gracilis*, sp. nov.

Nitidus, niger, antennis, palpis pedibusque flavis; prothorace parum elongato, basin versus satis angustato; elytris anguste ovatis, ad apicem parum sinuatis, apicibus parum prolongatis, sat profunde striatis. Long. corp. 7 mm., antennae vix 4 mm.

Closely allied to *A. depressus*, but with smaller thorax less narrowed behind, and rather narrower elytra, which are scarcely more sinuate, but are rather more prolonged at the tip. The hind tarsi are shorter, but their fourth joint is quite as long and as distinctly bilobed as it is in *A. depressus*. The fifth and sixth striae are connected at a rather greater distance from the tip than they are in *A. depressus*. The species is also extremely similar to *A. longulus*, from which it is readily distinguished by the distinctly bilobed fourth joint of the hind feet. *A. filipes* is also very similar, but in it the fourth joint is not bilobed.

Hab. Maui (Perkins). There is some doubt as to the exact locality of this species. The specimens (11 in number) are marked with the number 357, the entry corresponding to which is "Haleakala, 4000 ft., IV. 94." There has, however, been a mistake in connection with this number, as several insects bearing it are also labelled "West Maui mountains." This is probably the actual habitat of these specimens of *A. gracilis*. In addition to them Mr Perkins has recently found two specimens on Haleakala (3000 ft.) that are a little larger, but are apparently the same species.

No. 1232, Prof. Thaxter for Laboulbeniaceae.

(11) *Atelothrus dyscoleus*, sp. nov.

Nitidus, niger, parum convexus, antennis palpisque rufis, pedibus piceis; prothorace basin versus angustato, angulis posterioribus obtusis, rotundatis; elytris minus profunde striatis. Long. 7—8 mm.

Very black, shining. Head broad and short. Thorax only very slightly broader than long, a good deal narrowed behind, and usually with a very slight sinuation just before the hind angles. Elytra a good deal sinuate at the sides near the tip, but not appearing truncate, the striae fine, never very deep. Legs moderately long and stout, fourth joint of hind tarsus slightly bilobed.

This differs from *A. gracilis* by the colour of the legs and the less deeply striate elytra: the colour of the under-surface is black, the epipleuron not being at all yellow.

The small series varies a good deal. One specimen—the largest—has the antennae dark. In most of the specimens the third and the fourth, and the fifth and the sixth striae are separately paired, that is, united at the extremity; but in three others this is not the case, the third and the sixth striae meet together, enclosing the tips of the fourth and fifth. These examples have shorter legs than the previously mentioned specimens, and may possibly prove to be different. The four specimens from West Maui are very small, more deeply striate, and less elongate and shining. There is some doubt as to the locality, as explained in the remarks on *A. gracilis*; the clue being 357 as in that species.

Hab. Maui, 3000 ft., in 1900 (Perkins, No. 845). W. Maui? (Perkins, No. 357).

(12) *Atelothrus insociabilis*, Blk.

Anchomenus insociabilis Blackburn, Ent. Mo. Mag. xv. 1878, p. 121.

The type is like a very elongate *A. dyscoleus*: the head is not so broad, the thorax is straighter at the sides, and the elytra longer and rather more convex. It is unique.

Hab. Maui. Haleakala, 4000 ft. (Blackburn).

(13) *Atelothrus depressus*, sp. nov.

Subdepressus, nitidus, niger, antennis, palpis pedibusque flavis; prothorace basin versus fortiter angustato; elytris ad basin angustis, posterius latioribus, ad apicem perparum sinuatis, sat profunde striatis. Long. corp. 7½ mm., antennae 4½ mm.

Var. *fuscipes*, var. nov.; antennis pedibusque fuscis, elytris vix profundius striatis.

Thorax small, much narrowed behind, not sinuate at the sides, the base straight, hind angles rather indistinct. Elytra narrow at the base, much disconnected from the thorax, the apical sinuation just perceptible. Legs slender; fourth joint of hind tarsus slightly bilobed. Twenty-two specimens.

This species has a good deal the shape of the European *Platyni*. The margins of the thorax and elytra are dilute in colour to a variable extent. The var. *fuscipes* is represented by only four specimens: three of them have the elytra more deeply striate, especially at the tip, but the fourth agrees in this respect with the pale-legged form.

HAB. Lanai (Perkins); Lanaihale, Halepaakai Mts. Koele. Var. *fuscipes*, Lanai, 2000 ft., January 1894.

No. 1231, Prof. Thaxter for Laboulbeniaceae.

(14) *Atelothrus platynoides*, sp. nov.

Subdepressus, nigro-piceus, antennis, palpis pedibusque fusco-testaceis; thorace subplanato, basin versus fortiter angustato; elytris posterius latioribus, profunde striatis, ad apicem fortiter sinuatis, apicibus parum productis, fere singulatim rotundatis. Long. 6¾—7½ mm.

Var. *flavipes*, var. nov. Pedibus flavis.

This is extremely similar to *A. depressus* var. *fuscipes*, but is slightly broader, has the elytra a little more sinuate behind, and the fourth joint of the hind tarsus quite distinctly bilobed.

I originally described this species from a single specimen, and quite recently have received three others from Mr Perkins that confirm its distinctness. The tarsal structure approaches that of *A. dyscoleus* and of *Metromenus palmae*. There is no difference in form in the tarsi of the two sexes. Of the var. *flavipes* only a single specimen has been found. I see no distinction in it except the colour of the legs, and in this group of *Atelothrus* this character does not appear to me to indicate specific distinctness. This variety is very near *A. gracilis*, though the form in *platynoides* is considerably narrower, and the tarsi are distinctly more slender.

HAB. Molokai, Perkins. Molokai mts. 4000 ft., May 27th, 1893; No. 191. Molokai, 1902, Perkins.

(15) *Atelothrus transiens*, sp. nov.

Piceo testaceoque variegatus, antennis pedibusque flavis; prothorace inaequali, basin versus angustato; elytris sat nitidis, piceis, flavo-marginatis, interstitiis elevatis, angulatis, alternis saepius altioribus. Long. 6—7 mm.

In this extraordinary species the setae on the thorax are very rarely present, though their pits are always evident on the inner face of the side-margin quite near to, if not on, the summit. It differs from all the other species of the genus in its sculpture, and in this respect resembles the aberrant forms of *Mesothriscus* and *Metromenus* from the same island—Kauai. The head is black. Thorax a good deal narrowed behind, yellowish, more or less infuscate, with the margins pale, the surface always more or less crumpled, sometimes strongly so. The elytra are rendered somewhat dull by an extremely minute sculpture; there are no true striae, but angular ridges separated by broad grooves; in some species the alternate ridges are more elevated, but in others there is little difference in this respect: the lateral margin is always yellow. The under-surface is piceous variegate with yellow.

We have received about fifty specimens of this species; in all of them the thoracic setae are absent, except that in one specimen the seta exists on one side, and is of normal size[1]. A variety occurs in which the colour is more extensively yellow, and then there is an extreme resemblance to *Metromenus limbatus*, but in that species the sides of the elytra are always more broadly yellow than they are in these extreme varieties of *A. transiens*.

HAB. Kauai (Perkins). Makaweli, 2500 ft., in February 1896, and again in February 1897. Nos. 668 and 703.

MESOTHRISCUS, gen. nov.

Corpus apterum. Prothorax utrinque seta unica ad medium lateris sita munitus.

(1) *Mesothriscus vagans*, sp. nov.

Piceo-niger, antennarum basi, palpis pedibusque testaceis, antennis extrorsum obscurioribus; prothorace subtransverso, basin versus fortiter angustato, angulis posterioribus obtusis; elytris sat profunde striatis, interstitiis haud deplanatis, margine laterali rufa. Long. 7—9 mm.

The species varies a good deal in colour, the thorax being sometimes blackish and a little paler at the sides, while in other cases it is red, and intermediate conditions occur. The thorax is much rounded at the sides in front, and a good deal narrowed behind; the base is not straight, but a little directed forwards on each side; the hind angles are both obtuse and indefinite. The legs are usually dirty yellow. Eighty or ninety specimens. The thorax varies a good deal in form.

HAB. Molokai Mountains, 4000—4500 ft., on several occasions in June and August 1893 (Perkins).—? Maui (Perkins).

I have some little doubt as to the correctness of the labelling of the single individual on which the Maui record is based. It is numbered 384, which refers to Haleakala III. 1894. I incline to think it is a specimen from Molokai that has been misplaced during the preparation.

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[1] In a letter recently received from Mr Perkins he suggests that the absence of the setae in *A. transiens* may be to a considerable extent a post mortem occurrence. It is quite probable that this may be the case. In other words *A. transiens* may be a species liable to lose its thoracic setae from slight mechanical causes more easily than most other species do. If shewn to be the case, this would in itself be of considerable interest.

(2) *Mesothriscus muscicola*, Blackburn.

Anchomenus muscicola Blackb., Ent. Mo. Mag. XIV. p. 147, and XXI. p. 25.

Niger, antennarum basi, palpis pedibusque testaceis, antennis extrorsum obscurioribus; thorace haud transverso, basin versus angustato, angulis posterioribus rectis; elytris sat profunde striatis, interstitiis planis, margine laterali rufo. Long. corp. 7—9 mm.

This is very closely allied to *M. vagans*, but has the thorax a little differently shaped, and the base of the elytra more deeply bayed, or scooped out, on each side for the reception of the base of the thorax. The thorax is much sinuate behind, its hind angles nearly or quite rectangular, and well defined. The elytra are broad, deeply and very regularly striate, with the interstices quite flat. More than 60 examples.

This species, like *M. vagans*, varies a good deal, but as no specimens of the two species agree, I treat them as distinct. The thorax is always somewhat longer in proportion to the width than it is in *M. vagans*, and the hind angles are more sharply defined. Small examples have the thorax narrower at the base, and the hind angles not so acute, they therefore come nearer to *M. vagans*. The specimens that approach nearest to the Molokai Insect are two found on the Waianae mountains, 2000 ft., in February 1890, and one found on the mountains near Honolulu in August 1896.

HAB. Oahu. Apparently common; Honolulu mts., August 1896; Waianae mts., 2000 ft., February 1896; Kawaaloa, April 1893; Kaala mts., December 1892 (Perkins).

Nos. 1236, 1237, 1241, 1244, Prof. Thaxter for Laboulbeniaceae.

(3) *Mesothriscus prognathus*, sp. nov.

Piceus, antennis fuscescentibus, earum basi pedibusque flavis; capite gracili, elongato; prothorace vix transverso, cordato, angulis posterioribus perfecte, rectis; elytris sat profunde striatis. Long. 8½ mm.

I have seen only one specimen of this insect, and it is so close to certain extreme forms of *M. muscicola* that I cannot feel sure that it will prove distinct; it is, however, rather more elongate in form, with a distinctly longer head and slightly longer mandibles and the elytra rather less deeply striate, and I think should be distinguished till connected certainly with *M. muscicola*.

The unique example, for which I am indebted to Mr Koebele, is a female.

HAB. Oahu (Kobele).

(4) *Mesothriscus lanaiensis*, sp. nov.

Piceus, antennis palpis pedibusque rufis; prothorace transverso basin versus fortiter angustato et sinuato, angulis posterioribus obtusis; elytris ovatis, sat profunde striatis. Long. 7 mm.

Of this form only two specimens have been received; they do not agree with any example of *M. vagans*, but are so near thereto that a series may possibly show that it is not distinct. *M. lanaiensis* is of the size of the smallest examples of *M. vagans*, but is paler in colour, the thorax is altogether a little smaller, and the elytra rather narrower at the base so as to be somewhat differently shaped. The specimens are both male.

HAB. Lanai (Perkins), 2000 ft., January and February 1894.

(5) *Mesothriscus tricolor*, sp. nov.

Ferrugineus, capite elytrisque nigricantibus, his margine laterali (saepiusque sutura) ferrugineo; prothorace transverso, basi recta, angulis posterioribus levissime obtusis; elytris minus profunde striatis. Long. 7 mm.

This is closely allied to *M. vagans*, but besides the differences in colour, which are by no means invariable, it differs decidedly in the shape of the thorax and some other details. The basal part of the thorax is flatter, the sides behind being less upturned and less sinuate, with the posterior angles more sharply defined. The elytra are slightly broader and less rounded at the shoulders, their striation usually slightly finer and more regular. The female has only two abdominal setae on each side of the extremity of the last abdominal segment.

There is considerable variation in the small series of eighteen examples of this species; the red colour of the thorax being in some cases much infuscate. I also refer as varieties to this species the following two forms.

Var. *concolor*, var. nov. Paulo minor, totus ferrugineus, thoracis ad basin paulo angustiore. Molokai, five examples, W. Maui mountains, two examples.

Var. *rudis*, var. nov. Major, praesertim latior, corpore nigro, thoracis ad angulos posteriores lateribus magis elevatis. This variety approaches *M. muscicola*, but the thorax is considerably more transverse. Molokai, two specimens.

HAB. Molokai.—Maui (as a variety). Molokai, 4000—4500 ft., on several occasions in 1893 (Perkins). W. Maui, 4000 ft., April 1894. Var. *concolor* (Perkins).

No. 1239 of Prof. Thaxter, Laboulbeniaceae.

I am by no means sure that the var. *concolor* may not consist of one or two distinct species. The two specimens from W. Maui are very small and have a narrower thorax.

All the females of typical *M. tricolor* have, except one, only two setae on each side of the last ventral. The only female of the Molokai *M. tricolor concolor* has three on each side. The two W. Maui *M. tricolor concolor* (minor) are both males.

(6) *Mesothriscus hawaiiensis*, sp. nov.

Angustior, piceus, antennis rufis, basi palpis pedibusque flavescentibus; thoracis angulis posterioribus obtusis; elytris profunde striatis, ad apicem fortius sinuatis, margine laterali ferrugineo. Long. corp. $6\frac{3}{4}$ mm.

Var. Prothorace ferrugineo.

Antennae short. Thorax much narrowed behind, the hind angles very distinctly obtuse, the side margin not strongly upturned. Female, with two abdominal setae on each side.

The small series of thirteen examples indicates that this is probably distinct from *M. vagans.* The thorax is less contracted and sinuate behind, and the sides there less upturned, so that the surface appears to be flatter.

The variety with red thorax has a great resemblance to *Atelothrus hawaiiensis.*

HAB. Hawaii. Kilauea, July 1896 (Perkins).

No. 1238, Prof. Thaxter for Laboulbeniaceae.

(7) *Mesothriscus truncatus*, sp. nov.

Robustus, subdepressus, niger, nitidus, antennis palpis pedibusque testaceis; thorace transverso, basin versus angustato, angulis posterioribus rotundato-obtusis; elytris regulariter striatis, apicibus sinuatim subtruncatis. Long. corp. 8 mm.

This is not closely allied to any other species; by the form it resembles more *Atelothrus depressus* and allies and *Metromenus pavidus*, rather than any other *Mesothriscus.* The thorax is much narrowed behind; the angles are very indistinct. The elytra are broad, the angle formed by the junction of the lateral and basal margins is very indistinct; the striation is rather deep, very regular, and the broad interstices are quite flat: the apex is more depressed and truncate than usual. The fourth joint of the hind tarsus is not at all lobed. The female has three setae on each side of the last ventral segment. Three specimens.

The resemblance to *Metromenus pavidus*, in company with which this insect was found, is so great that I shall not be surprised if it prove to be a sport thereof.

HAB. Kauai (Perkins). Waimea, 4000 ft.

(8) *Mesothriscus collaris*, sp. nov.

Major, elongatus, piceo-ferrugineus, nitidus, antennis palpis pedibusque flavis, elytrorum limbo late ferrugineo; prothorace elongato, angusto, angulis posterioribus leniter obtusis; elytris elongatis, profunde striatis, ad apicem perparum sinuatis. Long. corp. 10 mm.

This resembles *Atelothrus longicollis* and *A. limbatus*: it has the thorax longer than the second of this species; while from *A. longicollis* it differs by the colour of the elytra and the less sharp posterior angles of the thorax. It is even more similar to certain specimens of *Metromenus cinctus*, but it has the thorax less constricted and narrow behind. Until more specimens are found it cannot be considered certain that these two are distinct. It is, however, very unlikely that a *Mesothriscus* can be a sport from a species of *Metromenus*, though the reverse case (in which the setae disappear) possibly happens as a rare phenomenon.

Only one specimen has been found: it is a female, and has three setae on each side of the last ventral segment. Prof. Thaxter took specimens of Laboulbeniaceae from it with the number 1240 (? 46).

Hab. Molokai (Perkins). Molokai mountains, 4000 ft., 15th June 1893.

(9) *Mesothriscus microps*, sp. nov.

Ferrugineus, nitidus, antennarum basi, palpis pedibusque flavis; prothorace lateribus posterius fere rectis, vix perspicue sinuato-angustatis, angulis exacte rectis; elytris humeris anterius prominulis, sat profunde striatis, ad apicem profunde sinuatis. Long. corp. 7 mm.

This insect to some extent connects *M. tricolor* with the abnormal *M. abax*. The thorax is a little narrowed in front, the base is quite straight; the angle formed by the junction of the sides and base of the elytra is very marked, and projects somewhat forwards. A single male example. The exact locality is somewhat doubtful, the specimen being one of those numbered 357, the entry for which is Haleakala, but, as stated under *Atelothrus gracilis*, the true locality is probably West Maui mountains.

Hab. Maui (Perkins).

(10) *Mesothriscus abax*, sp. nov.

Piceus, nitidus, antennis palpis pedibusque rufis; prothorace haud transverso, lateribus posterius fere rectis, nullo modo angustatis, angulis exacte rectis; elytris humeris anterius prominulis, profunde striatis, ad apicem minus profunde sinuatis. Long. corp. 6½—7 mm.

Plate VII. fig. 2.

The form of the thorax distinguishes this from all the other species except *M. microps*, in which, however, the thorax is less elongate. The colour varies from piceous to ferrugineous, the epipleura being pallid as in the other *Mesothriscus* of the central islands of the Archipelago.

Hab. Molokai.—Maui. Molokai, 4500 ft., June and August 1893. Maui, Haleakala, 5000 ft.

(11) *Mesothriscus kauaiensis*, sp. nov.

Fusco-testaceus, nitidus, antennis palpis pedibusque dilutioribus; prothorace haud transverso, basin versus fortiter angustato, angulis perobtusis; elytris profunde striatis, interstitiis convexiusculis, septimo vix magis elevato. Long. corp. 7 mm.

Readily distinguished from all the preceding species by the more convex interstices of the elytra, and from the following species by the interstices appearing broad instead of being angulate and therefore narrow at the summit. The seventh interstice is slightly more elevated than the others, and there is also an extremely slight, increased elevation of the fifth. The base of the thorax is not straight, and the hind angles are extremely indistinct. The female has three setae on each side of the last ventral segment.

The species is of considerable interest, as to a certain extent it connects the very peculiar Kauai species of *Mesothriscus* with those found on the central islands of the group. The species to which it comes nearest is *M. lanaiensis.* It is apparently of the greatest rarity.

HAB. Kauai (Perkins).

(12) *Mesothriscus optimus*, sp. nov.

Fusco-testaceus, antennis palpis pedibus elytrorumque margine laterali flavis; prothorace haud transverso, basin versus angustato, angulis obtusis; elytris quasi sulcatis, interstitiis fortiter sed inaequaliter elevatis, ad apicem haud truncatis, parum sinuatis. Long. corp. 7½ mm.

This species—like so many other of the Kauai Carabidae—has the sculpture of the elytra strangely abnormal; the interstices are strongly elevated and angular at the top so that the spaces between them form grooves, the true striae having disappeared: the small impressions on the third interstice cause an interruption of the costa, breaking it up more or less distinctly into elongate bullae, reminding one of the sculpture in the genus *Carabus.*

M. optimus is distinguished from *M. alternans* by the larger size, more elongate form and longer elytra, by the thorax narrowed behind, but not at all sinuate at the sides, and by the obtuse and rounded hind angles of the thorax. Only two specimens have been found.

HAB. Kauai (Perkins).

(13) *Mesothriscus opacus*, sp. nov.

Piceo-testaceus, opacus, antennis palpis pedibusque flavis, elytrorum limbo testaceo; prothoracis angulis posterioribus obtusis; elytris ad apicem profunde sinuatis interstitiis alternis elevatis, crenulatis. Long. 7 mm.

Distinguished by the peculiar sculpture of the elytra, these parts being dull, and the more elevated part of each interstice wavy. It is larger than *M. alternans*, and has the thorax different in form, being comparatively broader, more strongly narrowed behind, with the hind angles more obtuse, and the sides more broadly explanate. Only two specimens have been found. The female has only two setae on each side of the apex of the abdomen.

HAB. Kauai (Perkins).

(14) *Mesothriscus alternans*, sp. nov.

Minor, nigro-piceus, nitidus, antennis palpis pedibusque testaceis; minus depressus, prothorace angusto, angulis posterioribus obtusis; elytris parum elongatis, sulcatis, interstitiis alternis magis elevatis, apicibus fortiter sinuatis. Long. corp. 5—6 mm.

This is one of the species with the peculiar sculpture of the elytra that occurs in so many of the Kauai Carabidae of different genera; the true striae having disappeared, while in their place are grooves with the interstices more or less angularly elevated, the alternate interstices being more elevated than the others. The thorax is not transverse, and is always long and narrow, though it varies somewhat in form. The apices of the elytra are unusually strongly sinuate. The legs are rather short. The setae on the last ventral of the female are two in number on each side in most, if not all, of the specimens examined.

A large series.

Hab. Kauai (Perkins). Koholuamano, 4000 ft., in April, mts. Waimea, 4000 ft. in May.

Nos. 1220, 1242, 1243, Prof. Thaxter for Laboulbeniaceae.

PLATYNUS Bonelli.

This genus, as at present understood, comprises numerous species and has a very wide distribution. It is, however, a very composite one, and will no doubt be divided. The two species I place in it agree fairly well with the apterous forms of *Platynus* found in California. They are distinguished from the other Hawaiian Anchomenides by possessing two setae on each side of the thorax as is normal in Anchomenides. It is very remarkable that there are in the islands these two normal forms, while all the others are unusual in possessing a diminished number of thoracic setae, the majority of species in the islands being highly peculiar on account of the total absence of these setae. Both species are extremely rare.

(1) *Platynus ambiens*, sp. nov.

Depressus, fuscus, subtus nigricans, elytrorum epipleuris fusco-testaceis; prothorace elytris multo angustiore, basin versus angustato, angulis posterioribus leniter obtusis; elytris profunde striatis, apicibus oblique subtruncatis, parum sinuatis. Long. corp. 7 mm.

We have received only one specimen of this species; though at first sight very similar to *Atelothrus platynoides*, it is very distinct therefrom. The lateral margin of the thorax is very fine, and the sides behind are very slightly sinuate, the angles being sharply marked, though distinctly obtuse. The elytra are broader behind, with the apices scarcely at all prolonged behind the sinuation; the junction of the lateral and basal margins forms a definite, though very obtuse angle; they are deeply striate, and the interstices are a little convex. The legs are slender, the fourth joint of the hind tarsus scarcely at all bilobed. One male.

HAB. Kauai (Perkins). Without indication of locality or date.

(2) *Platynus calathiformis*, sp. nov.

Angustus, parum nitidus, piceus, elytrorum margine rufo, antennis palpis pedibusque testaceis; thorace basin versus vix angustato, angulis posterioribus rectis; elytris subtiliter striatis, striis ad basin obsolescentibus. Long. $7\frac{1}{2}$ mm.

This species resembles only *Atelothrus erro*, from which it is readily distinguished by the thorax being slightly broader at the base than it is at the front angles. The base is quite straight and the hind angles are very sharply marked. The seventh stria can scarcely be detected near the base. The fourth joint of the hind tarsus is not lobed. The female has three setae on each side of the last ventral segment. Five specimens.

HAB. Maui (Perkins). Haleakala, 4000—5000 ft., March and April 1894.

MECOSTOMUS, gen. nov.

Mandibulae elongatae, acuminatae, parum curvatae. Palpi elongati, labiales pertenues. Thorax elongatus, utrinque seta erecta ante medium lateris sita.

This genus can only be placed next to *Mesothriscus*; although there are no connecting links between the two, I think it is undoubtedly allied to the genus in question more nearly than it is to *Mecomenus*, which is the only genus having a similar mouth-structure. *Mecomenus* appears indeed to be allied to *Metromenus* rather than to *Mecostomus*. The elongation of the trophi is analogous to that of the European genus *Stomis*, but there is no other affinity between the two, and the trophi are far from similar in their details. There is a single well-marked seta on the middle of each side of the thorax. The female has two abdominal setae on each side of the last ventral plate.

(1) *Mecostomus perkinsi*, sp. nov.

Angustus, subparallelus, piceus, nitidus, palpis antennis pedibusque flavis; prothorace elongato, lateribus posterius sinuatis, angulis posterioribus rectis; elytris sat profunde striatis, ad apicem fere esinuatis. Long. corp. 7 mm.

Plate VI. fig. 11.

This is readily identified by the elongate mandibles. In general form and appearance it has some resemblance to the narrowest examples of *Mesothriscus abax*, but it is very different on account of the thorax being narrowed behind and of the elytra being much narrower. The thorax is as long as broad. The shoulders of the elytra form a well-marked denticle or angle outside the hind angle of the thorax. The legs are short. The front tarsi of the male very little dilated.

I have great pleasure in naming this interesting insect in honour of Mr R. C. L. Perkins, who has been so remarkably successful in his entomological work in the Hawaiian islands. It is very curious to find what appears to be an entirely precinctive insect possessing a strongly marked specialisation that to some extent has an analogue in two or three other of the Island forms (*Mecomenus, Gnatholymnaeum, Nesolymnaeum*) that are only distantly, or not at all, related to it. I have, however, found that *Mesothriscus prognathus* apparently forms a lead to it. The insect appears to be of great rarity.

HAB. Maui (Perkins). Haleakala.

MECOMENUS, gen. nov.

Partes oris graciles, mandibulae elongatae, tenues, parum curvatae. Prothorax transversus sine setis erectis.

The genus is established for *M. koebelei* and *Anchomenus putealis* Blk., two of the rarest of the Hawaiian Carabidae. It is allied by the elongate slender trophi to *Mecostomus*, but in other respects is similar to *Metromenus*. The sculpture of the tarsi is that of such species as *Metromenus epicurus*. The section of *Metromenus* to which it is nearest is placed at the end of the genus, consisting of *M. latifrons* and *calathoides*. *Mecomenus* has the broad base of the elytra in common with the section named of *Metromenus*.

The genus like *Mecostomus* is confined to the island of Maui.

(1) *Mecomenus koebelei*, sp. nov.

Latus, nigro-piceus, nitidus, antennis pedibusque testaceis; prothorace transverso, lateribus subrectis, angulis posterioribus perfecte rectis; elytris sat profunde striatis. Long. 7—8 mm.

This very distinct species has a broad head, which is definitely constricted almost immediately behind the eyes. The shoulders of the elytra are quite free. The thorax is very shining; the base is just perceptibly broader than the front, the posterior angles are remarkably definite, and the sides near them much directed upwards. The elytra are unusually broad, deeply striate, with the interstices quite flat; the lateral groove is yellow, and the tips are sometimes pale.

In addition to the six examples of this species from Lahaina, there is an individual without any locality label that I treat as a variety of *M. koebelei*. It is narrower, and the shoulders of the elytra less prominent. Except for the longer trophi, this individual appears scarcely to differ from some of the specimens of *Metromenus latifrons*.

HAB. Maui. Lahaina (Koebele).

(2) *Mecomenus putealis*, Blackburn.

Anchomenus putealis, Blackburn, Ent. Mo. Mag. XVII. 1881, p. 227.

The species will be readily recognised by the long mandibles and by the fact that the lateral margin of the thorax is fine and less elevated than usual. The lateral margin of the thorax is not so much incurved at the junction with the basal margin as it is in the normal *Metromeni*; on the other hand, it is more incurved than it is in the aberrant species of the *latifrons* group of *Metromenus*. The elytra are yellow at the tips but not at the sides. The antennae and legs are rather short, and the eyes are reduced below the normal size.

HAB. Maui. "In damp rotting leaves on the margins of a stagnant pool, at an elevation of about 4000 ft. on Haleakala," April or May 1880 (Blackburn). Haleakala, in forest, 4000—5500 ft., March 1894, one specimen (Perkins, No. 384).

METROMENUS Sharp.

Metromenus Sharp, Ent. Mo. Mag. XX. 1884, p. 217.

The characters of this genus—among the Hawaiian Anchomenides—are tarsi distinctly depressed longitudinally along each side, wings vestigial, thorax without any seta.

Most of the numerous species are confined to the island of Oahu, and several of them are still very inadequately known. Their discrimination is a very difficult matter, several of the species being extremely close to one another and so variable that knowledge of a good series is necessary to enable anyone to form an opinion as to their validity. There are a few very distinct forms among them, such as *M. palmae* Blackb. and *M. perpolitus*. I have explained previously that in other genera, where thoracic setae exist, the seta may, as an anomaly, be present on one side and absent on the other, and, as an extremely exceptional case, may be absent from both sides: so that the individual then becomes systematically a *Metromenus*. I believe this phenomenon really occurs (and Mr Perkins shares this opinion), but that it is extremely rare. Under *Atelothrus stenopus* I have remarked on such a case. Still the evidence on this point is far from being completely satisfactory. However interesting this question may be from a biological point of view, it does not much affect the question of the systematic importance of the seta. There are only one or two cases in which a species I have considered a *Metromenus* could belong to any known species of a genus possessing setae even if the difference as to setae were left out of consideration.

With regard to the tarsal structure, I should explain that I have not made use of it for dividing the genera because of the intermediate forms that exist. In the preceding division of the Anchomenides I found that the species with lobed tarsi readily separated from the others; but here the reverse is the case. The character is, however, of the greatest value for discriminating species, as there seems to be extremely little variation in it.

DIVISION I. Lateral margin of elytra greatly curvate, rounded at the shoulders. Species 1—24.

(1) *Metromenus palmae*, Blackburn.

Dyscolus palmae Blackburn, Ent. Mo. Mag. XIV. p. 147.

This species cannot be confounded with any other. It has a broad, lobed fourth joint on the hind tarsus, and is dark in colour. *M. mutabilis* has a large fourth tarsal joint, but is red in colour and different in shape. Several species of *Atelothrus* approach *M. palmae* in shape and in the tarsal structure.

HAB. Oahu. Not uncommon on the leaves of *Freycinetia*; usually at an elevation of about 1500 ft. (Blackburn). In several localities about Honolulu (Perkins).

(2) *Metromenus mutabilis*, Blackburn.

Dyscolus mutabilis Blackburn, Ent. Mo. Mag. XIV. p. 148.

Plate VI. fig. 17, *a*, *b* hind foot, above and below.

This species is of rather depressed form, has the elytra moderately deeply striate, and the fourth joint of the hind feet deeply divided so as to form distinct, slender, free lobes. The colour is peculiar and quite characteristic. It is a rather bright yellow, with the head somewhat infuscate and the elytra marked with black at the sides behind.

I have upwards of a hundred examples before me and all are recognisable at a glance except in the case of six examples. Two are of an entirely yellow colour without the black marks. Four, on the contrary, have the black colour very much extended, so as to have the head quite black, the middle of the thorax infuscate, the elytra blackish with the outer margin remaining yellow, and the suture and base yellowish. Though these aberrant examples greatly resemble varieties of *M. caliginosus* and *M. aequalis*, yet the structure of the tarsi is quite unmistakeable, and there is no doubt as to the distinctness of this species. It is in fact, notwithstanding its name, much less variable than its immediate allies. The tarsal structure differentiates it from all the other *Metromenus* except *M. palmae*.

HAB. Oahu. Rather plentiful on the leaves of a species of the lily tribe (locally known as "silver sword"); also in stems of fern; at an elevation of 2000 ft. and upwards (Blackburn). Honolulu, in various spots and in several months, apparently always between 2000 and 3000 ft. (Perkins).

No. 1259, Prof. Thaxter for Laboulbeniaceae.

(3) *Metromenus caliginosus*, Blackburn.

Dyscolus caliginosus Blackburn l. c.

This species differs from *M. mutabilis* by the narrower form, rather more deeply striate elytra, and by the less deeply divided fourth joint of the hind feet. It is extremely variable in colour, some examples being concolorous testaceous or yellowish, while in others the head, the disc of the thorax and the elytra are blackish. The dark colour of the elytra is not formed (as it is in the dark varieties of *M. mutabilis*) by an extension of dark colour from behind forwards, but by a general suffusion of the surface. I have examined about sixty specimens.

HAB. Oahu. Found occasionally in the stems of ferns and other plants at an elevation of about 2000 ft. (Blackburn). Honolulu, in various places in the mountains (Perkins).

No. 1261, Prof. Thaxter for Laboulbeniaceae.

(4) *Metromenus aequalis*, sp. nov.

Flavescens, plus minusve nigro-infuscatus, antennis pedibusque laete flavis; elytris subtiliter striatis; tarsorum posticorum articulo quarto emarginato haud bilobato. Long. 7 mm.

Plate VI. fig. 14, hind foot above and below.

Very closely allied to *M. caliginosus*, but can be distinguished by the tarsal structure as well as by the less deeply striate elytra, the broader form, and the rather broader base of the thorax. It is always broader. Although the species varies in colour in the same manner as *M. caliginosus* does, yet I do not entertain any doubt as to the distinctness of the two forms, though at first I did so.

The head is black or blackish. The thorax is reddish-yellow, with the disc more or less broadly and deeply infuscate. The elytra are obscure yellow, more or less deeply tinged with black; in some examples quite black, with the suture and epipleural margin reddish. The thorax is $1\frac{1}{2}$ mm. broad and scarcely shorter than this; it is distinctly narrowed behind but scarcely at all sinuate, the lateral and basal margins are quite fine, the latter very broadly interrupted in the middle, the hind angles are moderately definite and slightly obtuse. The fourth joint of the hind tarsus is quite as large as it is in *M. caliginosus*, but the fifth joint is not inserted so near the base of the fourth, hence the tarsi are a little less lobed.

HAB. Oahu. Halemano, 2000 ft., December 1892.

A variety occurs in which the colour is entirely yellow, with a slight infuscation of the head; this superficially resembles *M. mutabilis*, but that species has the tarsus much more bilobate. This variety was found in the Waianae mountains, 2000 ft., February and April 1896. Six specimens.

No. 1260, Prof. Thaxter for Laboulbeniaceae.

(5) *Metromenus angustifrons*, sp. nov.

Piceus, sat nitidus, elytris nigris, margine externo suturaque rufis, antennis pedibusque testaceis; capite angusto; prothorace leviter transverso, basin versus sat angustato, angulis posterioribus obtusis, haud rotundatis; elytris profunde striatis. Long. 6 mm.

This may be compared with *M. caliginosus*, but it cannot be confounded therewith on account of the narrower and longer form of the head and the fact that the eyes are not prominent and exhibit only a very slight convexity. The hind angles of the thorax are less rounded than they are in *M. caliginosus*, and the striation of the elytra is deeper: the yellow margin along the external groove of the elytra is very conspicuous. It is equally near to *M. protervus*, and in some respects is intermediate between it and *M. caliginosus*, but it has less convex eyes, a smaller thorax, and less elongate, less deeply striated elytra. Only one specimen has been found.

HAB. Oahu. Honolulu, 2000—3000 ft. (Perkins).

(6) *Metromenus meticulosus*, Blackburn.

Anchomenus meticulosus Blackburn, Ent. Mo. Mag. XIV. 1877, p. 146.

I know so little of this species that I scarcely like to remark on it. According to two specimens sent me by Mr Blackburn it is a small species of depressed black, with the margins of the thorax and elytra and the suture red, antennae and legs bright yellow; the tips of the elytra very little sinuate, and the striae not deep. Mr Perkins has not met with the species; a specimen he found in the Waianae mountains (2000—3000 ft., April 1892) comes near *M. meticulosus*, but I think is clearly not the same species. Another specimen from Halemano is entirely yellow in colour, but may be a variety of *M. meticulosus*.

HAB. Oahu. Under the bark of trees on the mountains; not common (Blackburn).

(7) *Metromenus scrupulosus*, Blackburn.

Anchomenus scrupulosus Blackburn, Ent. Mo. Mag. XIV. 1877, p. 145.

This species has a very broad yellow tip to the elytra, and the lateral margins broadly yellow. Mr Perkins found at Pauoa a single specimen that may belong to it, but it has the thorax longer than the original type, now in the British Museum.

HAB. Oahu. Unique; found under bark at an elevation of 1500 ft. (Blackburn).

(8) *Metromenus lentus*, sp. nov.

Piceus, capite thoraceque rufescentibus, antennis palpis pedibusque flavis; prothorace parvo, basin versus angustato; elytris sat profunde striatis. Long. 6—7 mm.

One of the smallest of the genus; with short antennae and legs. The thorax is narrow, much narrowed behind, the hind angles not rounded but definite and obtuse. The elytra are blackish, with the inflexed margin yellow, the tips narrowly yellow. The striation is rather deep but the interstices are not in the least convex. The tarsi are short with the sculpture on the upper surface very conspicuous, the fourth joint not in the least lobed.

Very similar to *Mesothriscus hawaiiensis*, but smaller and with shorter antennae. I have mentioned that *Atelothrus hawaiiensis* is also very similar. As the three examples of *Metromenus lentus* are the only trace we have of the existence of *Metromenus* in Hawaii, it is not impossible that they may be depauperated examples of *Atelothrus hawaiiensis*, but I think this highly improbable.

HAB. Hawaii. Kilauea, 1½ miles on the Hilo road, August 1895, one specimen; Kilauea in August and September 1896, one specimen on each occasion (Perkins); Hawaii, one specimen (Koebele).

(9) *Metromenus epicurus*, Blackburn.

Anchomenus epicurus Blackburn, Ent. Mo. Mag. XIV. 1877, p. 145.

This species may be recognised by its large size[1] and robust build, and by the rather dull surface and clear yellow legs. The inflexed margin of the elytra is yellowish, and on the upper surface this shows but little, the yellow colour there being confined to the fine groove inwards from the raised margin. There is no yellow colour at the tip. The surface of the elytra is more dull in the female than it is in the male, except near the tip, where in each sex the peculiar minute reticulation, on which the dullness depends, is very visible. These characters apply well to a large series of specimens from Halemano, from the Kaala mountains and from Kawailoa Gulch (in all about 100 specimens). From other localities there is but a small series, and though in each case the examples are some of them more or less aberrant, they connect by means of intermediate examples with the type or with *M. velox*, a form doubtfully distinct from *M. epicurus*. The most marked departure from the average are examples in which the tibiae are dark in colour, those of the hind legs being most conspicuously so; this condition I have labelled var. *fuscipes*. Should *M. velox* prove to be not distinct, it is likely to be found connected by a series of these dark-legged forms.

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[1] Blackburn, l. c., gives the length as 9—9½ mm., but I find it to be about 8½ mm.

HAB. Oahu. "Oahu mountains very local" (Blackburn). Halemano 2000 ft. in winter: Kaala mountains, 2000 ft., in winter: west head of the south branch of Kawailoa Gulch, in April: Waianae mountains in April: Honolulu mountains in April 1896, three aberrant specimens, No. 681: Honolulu mountains, August 1896, one specimen: Wahiawa, April 1901, three specimens: Mokuleiia in April 1901: Waialua in March: on *Pipturus*, back of Tantalus, November 1900, four specimens, one very aberrant: Waianae mountains, 2000—3000 ft., February 1896, 14 specimens more or less aberrant and approaching *M. velox* (Perkins).

No. 1262, Prof. Thaxter for Laboulbeniaceae.

(10) *Metromenus velox*, sp. nov.

Niger, nitidus, antennis pedibusque testaceis, tibiis plus minusve infuscatis; elytris margine externo angustissime flavo, sat profunde striatis, apicibus post sinuositatem parum elongatis; thorace versus margines rufescente. Long. 6½—7 mm.

This is very closely allied to *M. epicurus*, but is smaller, less robust, more shining black, and has the elytra more truncate behind: the thorax is shorter, and the legs more slender, and with the tibiae and the middle of the femora infuscate.

HAB. Oahu, Waianae mountains, lee side, February 1896, seventeen specimens, No. 542.

This will probably prove to be a form of *M. epicurus*; it will be noticed that it is not strictly localised, as *M. epicurus* also occurs in the Waianae mountains.

(11) *Metromenus fraternus*, Blackburn.

Anchomenus fraternus Blackburn, Ent. Mo. Mag. xiv. 1877, p. 145.

Of moderate size, rather depressed, moderately deeply striate, with broad yellow tip to the elytra; this colour is continued forwards along the sides but fades out before reaching the shoulder, where only the upturned margin is pale. The species appears not to be very variable. The specimen found on *Pipturus* is very large.

HAB. Oahu. Not rare; under bark of trees at an elevation of about 2000 ft. (Blackburn). Waianae mountains 2000—3000 ft., lee side, February 1896, 32 specimens; on *Pipturus*, back of Tantalus, August 1900, one specimen; ridge Ceryone, N. of Pauoa Valley, November 1892, one specimen (Perkins).

(12) *Metromenus fraudator*, sp. nov.

Nigerrimus, nitidus, antennis pedibusque (tibiis interdum) infuscatis; prothorace subquadrato, basin versus leviter angustato, angulis posterioribus obtusis; elytris sat profunde striatis. Long. 6½—7 mm.

Plate VI. fig. 18, vestigial wing.

This species is more black and shining than most of its congeners. It has no specially characteristic feature so far as I can detect, and perhaps is nearest to *M. meticulosus*, but it is rather larger, and is of less depressed form with rather longer antennae and legs, and the thorax is less narrowed to the base, with the hind angles less rounded. In colour it seems very different. The epipleuron is yellowish, but this colour does not extend to the upper surface. It is more similar in appearance to *Atelothrus filipes*, but the side of the thorax stands up more at the hind angle, and the obtuseness of the hind angles is caused more by the narrowing of the sides and less by the curving forwards of the base, and the tarsi are not quite so slender. Thirty-six specimens.

HAB. Molokai, 4000 ft., in May and June, 1893; Boggy plateau about 4000 ft., below the densest forest, June 1896 (Perkins).

Nos. 1253, 1255, Prof. Thaxter for Laboulbeniaceae.

(13) *Metromenus mœrens*, sp. nov.

Niger, minus convexus, antennis testaceis articulo tertio infuscato, pedibus fusco-testaceis; prothorace haud transverso basin versus parum angustato, angulis posterioribus haud rotundatis, parum obtusis; elytris leviter striatis. Long. 8½—9 mm.

A rather large *Metromenus*, with dark legs, and with the third (sometimes also the fourth) joint of the antennae darkened. The antennae and legs are rather long, the former about 5 mm. Head broad. Thorax dark in colour with the margins scarcely at all paler, the breadth just perceptibly greater than the length, the base nearly as broad as the front margin, the hind angles nearly rectangular, but slightly obtuse. Elytra rather broad at the base, the angle at the junction of basal and lateral margins less prominent and acute than usual, the striation not deeply impressed; the yellow colour but little developed on the epipleura and not extending to the upper surface. Femora broadly infuscate about the base, tibiae infuscate. Hind tarsi long and slender, their fourth joint rather longer than usual but not lobed. Fourteen specimens.

This species is not very close to any other. In general form it has a good deal of resemblance to *Platynus calathiformis*. The variation does not seem to be great, but some specimens are more shining and have the elytra more deeply striate than others.

HAB. Molokai (Perkins). The localities the same as for *M. fraudator*.

(14) *Metromenus pavidus* sp. nov.

Robustus, parum convexus, nitidus, niger, antennis palpis pedibusque flavis; prothorace transverso, basin versus angustato, angulis posterioribus obtusis, subrotundatis; elytris apice sinuatim subtruncato profunde striatis, interstitiis levissime convexis. Long. 7—8½ mm., lat. 3—3⅖ mm.

Plate VI. fig. 13, hind foot.

This very distinct *Metromenus* is not closely allied to any other. The short prothorax (the breadth of which to the length is as about 6 to 5), the sinuate-truncate apices of the elytra and the shining black colour give it a slight resemblance to some of the shining species of *Disenochus*. The tarsi are however distinctly grooved, and there is no real affinity with *Disenochus*. The legs, antennae and palpi are bright yellow, the epipleuron is quite black. The fourth joint of the hind tarsus is small, not bilobed. The female has three setae on each side of the middle of the last ventral segment, and the elytra are more prolonged at the apices. A large series of about 240 examples has been obtained. The series does not exhibit much variation.

Mesothriscus truncatus is so extremely similar to this insect, that I am doubtful whether it is more than a sport. If this be the case it is almost the only instance among the Hawaiian Carabidae of a species in which no thoracic setae usually exist offering abnormal specimens in which they are occasionally present. It is not uncommon for species that normally possess the seta to occasionally throw off individuals in which it is absent on one or (as an occurrence of extreme rarity) on both sides; but the reverse case is exhibited only in this species (if *M. truncatus* be actually a sport) and possibly in the case of *Mesothriscus collaris*, which I have suggested may possibly be a sport of *Metromenus cinctus*, though I do not think it will prove to be so.

HAB. Kauai; Waimea, 4000 ft., May and June 1894, August 1896 (Perkins).

(15) *Metromenus sphodriformis* sp. nov.

Elongatus, piceo-ferrugineus, vel ferrugineus, antennis pedibusque elongatis, flavis; prothorace haud transverso, ad basin angusto, angulis posterioribus exactis, fere rectis; elytris sat profunde striatis. Long. 8—10 mm.

Plate VI. fig. 10, individual from Molokai; fig. 19, vestigial wing of example from Maui, (*b*) of example from Molokai.

The elongate form, in conjunction with the large size, long antennae and legs, and comparatively narrow thorax readily distinguish this insect from the others of the genus (except *M. cinctus*). The antennae are nearly 6 mm. long; the head is narrow. The thorax is never broader than long, and in some specimens is distinctly longer than broad, usually it is just perceptibly longer along the middle than it is broad; it is much narrowed behind, and the hind angles are nearly rectangular, but just a little obtuse. The elytra are long and narrow, their striation moderately fine. The long antennae and legs are clear yellow.

This is a rare species, but Mr Perkins has obtained in all 37 specimens that I attribute to it. If I am correct in treating them all as one species, it is a variable one, and one that occurs in two islands, viz. Molokai and Maui. The specimens from Molokai vary to some extent in the shape of the thorax and the depth of the striae of the elytra. The examples from Maui also vary a little in these respects; they have on the whole the thorax a little broader, and its hind-angles very sharply defined, but these characters—bearing in mind the variation—are not sufficiently marked to justify treatment of the two as distinct.

I have examined the vestigial wings in one of the Molokai (Plate VI. fig. 19*a*) examples, and find that they are peculiar in being about twice as long as is usual in *Metromenus*, they extend considerably beyond the spiracle and are fully 1 mm. long instead of half a millimetre as is the rule in most of the other flightless species.

I have also examined (Plate VI. fig. 19) these organs in a specimen from Haleakala, Maui, and find that they are distinctly larger than they are in the Molokai specimen, being about 1½ mm. long. This does not seem to be beyond the limits of variation, and, unless it should be confirmed as a constant distinction after the examination of more individuals, cannot be considered an evidence of the two forms being distinct.

HAB. Molokai, Maui. Molokai, 4000—5000 ft. on several occasions, but very rare (Perkins). Maui, Haleakala, 3000—5000 ft., on several occasions, but always rare (Perkins).

(16) *Metromenus cinctus* sp. nov.

Elongatus, piceo-ferrugineus, antennis pedibusque elongatis flavis; elytris ad apicem et ad latera testaceo-cinctis; prothorace haud transverso, basin versus angustato, angulis posterioribus perfecte rectis; elytris sat profunde striatis. Long. 9—10 mm.

This is distinguished from some of the specimens of *M. sphodriformis* only by the elytra being broadly and definitely pale at the tips; this yellow colour also extends forwards along the sides.

We have received only a small series of ten specimens, and it is doubtful whether it may prove distinct from *M. sphodriformis*. I have suggested (but with the greatest doubt) that *Mesothriscus collaris* may be a sport of this species.

HAB. Molokai, 4000—5000 ft., June 1893 (Perkins).

(17) *Metromenus fossipennis*, Blackburn.

Anchomenus fossipennis Blackburn, Ent. Mo. Mag. XIV. 1877, p. 146.

A rather small *Metromenus* of dull red colour, with deeply striated elytra, and with the foveae thereon deep and remarkably conspicuous. The thorax is transverse, scarcely narrower at the base than in front.

Hab. Oahu. Not rare, generally in company with *M. mutabilis* (Blackburn). Near Honolulu, rare (Perkins).

(18) *Metromenus bardus*, Blackburn.

Anchomenus bardus Blackburn, Ent. Mo. Mag. xiv. 1877, p. 146.

This is a peculiar species of dull brown colour, with broad convex, deeply striated elytra, and transverse thorax which is just perceptibly broader at the base than at the front angles. It is apparently extremely rare.

Hab. Oahu. Mountains (Blackburn): Mountains near Honolulu, 2000—3000 ft. (Perkins).

(19) *Metromenus oceanicus*, Blackburn.

Anchomenus oceanicus Blackburn, Ent. Mo. Mag. xiv. 1877, p. 146.

This remarkable insect has not been found by Mr Perkins and remains unique. It has an extremely narrow, long head.

Hab. Oahu. "Mountains, apparently very rare" (Blackburn).

(20) *Metromenus fugitivus*, Blackburn.

Anchomenus fugitivus Blackburn, Ent. Mo. Mag. xiv. 1877, p. 147.

Similar to *M. fraternus* in colour, but with very deeply striated elytra and a broader thorax.

Hab. Oahu. Rare, 2000 ft. (Blackburn). Under stones in wet gulches of Koolau Range, far back of Waialua, 2000 ft., January 1893. Mountains near Honolulu, July. Wahiawa, April. On *Pipturus*, back of Tantalus. Always rare (Perkins).

(21) *Metromenus protervus*, Blackburn.

Anchomenus protervus Blackburn, Ent. Mo. Mag. xiv. 1877, p. 145.

This also is a species with deeply striate elytra, which are yellow to a small extent at the tip. It differs much from *A. fugitivus* by the narrow head and thorax.

Hab. Oahu. In various localities on the mountains but not common, under bark (Blackburn). Behind Pauoa valley. Mountains near Honolulu. On *Pipturus* back of Tantalus. Very rare (Perkins).

(22) *Metromenus cuneipennis*, Blackburn.

Anchomenus cuneipennis Blackburn, Ent. Mo. Mag. XIV. 1877, p. 146.

A very distinct species of elongate form, not at all depressed, of black, not very shining, colour, with narrow head, thorax not transverse, and deeply striated elytra, the interstices evidently convex. It occurs in several localities but apparently only in very small numbers.

HAB. Oahu. "Mountains" (Blackburn). Halemano, 2000 ft.: Mountains near Honolulu. Rare (Perkins).

(23) *Metromenus perpolitus*, sp. nov.

Nigerrimus, politus, antennis pedibusque fusco-testaceis; prothorace basin versus angustato, lateribus rotundatis, angulis posterioribus rotundato-obtusis; elytris disco sulcato, exterius striis obsoletis. Long. 8 mm.

One of the most distinct species, recognisable by the deep black, highly polished surface, and the peculiar striation of the elytra; near the suture the striae are deeply impressed and the interstices convex, while more externally the striae are altogether obsolete.

This is one of the rarest as well as most remarkable of the Hawaiian Carabidae. Only three specimens have been found and I have been able to examine its structure far from thoroughly. The tarsal grooves are excessively obscure, but I think really exist on the outer side of the basal joint, and I therefore place the species in this division of the Hawaiian Carabidae. In general form as well as some other characters it makes a certain approach to *Disenochus* (cf. *D. aterrimus*).

HAB. Oahu. Wahiawa (Perkins).

(24) *Metromenus limbatus* sp. nov.

Sat depressus, nitidus, flavescens, capite, thoracis disco elytrisque piceis, his late testaceo-limbatis; elytris sulcatis, interstitiis angulatim elevatis. Long. 6—7 mm.; lat. vix $2\frac{3}{4}$ mm.

This resembles no other species of the genus but approximates by its peculiar sculpture to the aberrant forms of *Mesothriscus* and *Atelothrus* that inhabit the same island—Kauai. The thorax is evidently shorter than broad, a good deal narrowed behind but scarcely at all sinuate, the front angles scarcely at all prominent, the side-margin behind the middle more elevated, the disc with a broad vague longitudinal depression, the hind angles broadly rounded. Elytra broadly yellow at the tip at sides, shining, black or piceous except as mentioned, and that the suture and basal margin are also yellow; they have no true striae, but there are seven longitudinally elevated ridges, the summit of each being sharp; the tip is slightly sinuate on each side, not truncate. The legs and antennae are bright yellow; the undersurface is broadly yellow laterally, but is infuscate along the middle. The fourth tarsal joint seen from beneath is only a little emarginate. The female has three setae on each side of the extremity of the abdomen.

This species may be very easily confounded with those examples of *Atelothrus transiens* that are most brightly coloured; but independently of the entire absence of any pits for the reception of setae on the thorax, this part is shorter and broader, and the elytra are polished, without the dulness arising from the minute sculpture of *A. transiens*. The yellow margin of the body is always broader than it is in *A. transiens*. The two species have not been found in company.

A good series of about 65 specimens was obtained.

HAB. Kauai; at an elevation of about 4000 ft. Waimea, May and June 1894; Koholuamano, April and October 1895; and on the high plateau in August, September and October 1896 (Perkins).

DIVISION 2. Lateral margin of elytra but little curved in at the shoulders, the basal margin much extended laterally and with sharply marked angle. Thorax with a straight base received on the base of the elytra.

(25) *Metromenus latifrons* sp. nov.

Robustus, piceus, parum nitidus, antennis pedibusque sordide testaceis; capite lato; prothorace transverso, angulis posterioribus rectis. Long. 7 mm.

Antennae moderately long and stout. Thorax distinctly broader than long, base straight, sides straight behind, a little narrowed in front so that the base is distinctly broader than the apex. Elytra dull, the groove at the outer margin near the shoulders strongly developed, and its red colour striking. The striae are rather deep behind. Fourth joint of hind tarsus longer than broad, not bilobed.

The small series of nine specimens exhibits a good deal of variation in the width of the thorax. They were nearly all found as single specimens on different occasions.

HAB. Molokai. Mountains, 4000—5000 ft. (Perkins).

Nos. 1254, 1256, Prof. Thaxter for Laboulbeniaceae.

(26) *Metromenus calathoides* sp. nov.

Rufo-piceus, nitidus, antennis pedibusque flavis; capite angusto; prothorace basin versus latiore; elytris minus profunde striatis. Long. 7 mm.

One of the most distinct species of the genus; with a narrow head and a thorax considerably wider at the base than in front; the species it most resembles is *Mesothriscus microps*. Antennae rather slender. Head long and narrow, eyes but little convex. Thorax becoming broader from apex to base, the sides slightly curvate, behind much elevated, hind angles rectangular. Sides of the elytra somewhat widely explanate. Tarsi slender, fourth joint long. One male specimen.

HAB. Kauai. "Hal. 4000 ft. 5, '95" (Perkins). I have no doubt this label refers to Halemanu in Kauai.

Group *PTEROSTICHIDES.*

This is one of the most enormous of the divisions of Carabidae, but in the Hawaiian islands comprises only a small group of closely allied forms. They may be easily recognised by the "fault" in the margins of the elytra (Plate VI. fig. 12).

The genera I adopt are of the simplest kind depending entirely on the thoracic setae.

No prothoracic seta	*Metrothorax.*
One prothoracic seta, at hind angle	*Atelothorax.*
One prothoracic seta, at middle of side	*Thriscothorax.*
Two prothoracic setae, one at hind angle, one at middle	*Mecyclothorax.*

MECYCLOTHORAX, gen. nov.

Prothorax utrinque setis duabus munitus, una ad angulum posteriorem, altera paulo ante medium lateris sita. Alae vestigiales.

This genus includes a considerable variety of forms all of which are distinguished by their atrophied wings from the antipodean genus *Cyclothorax*, which seems to be the only nearly allied form yet known.

It is very difficult to tabulate the species, but the following may serve as a key to the arrangement here adopted.

Small forms with a decidedly transverse, non-cordate thorax (Plate VII. fig. 4), which is never furnished with a distinct neck or basal constriction	species 1—8.
Larger, but otherwise as above	species 9, *M. bradycellinus.*
Small forms, with narrow base to the thorax, and sharp posterior angles; this group leads by gradations to the group with cordate thorax, but has the thorax shorter in proportion to the width	species 10 to 14.
Species with cordate thorax, i.e. a neck, or basal constriction (Plate VII. fig. 6)	species 15 to 18.
Larger forms with broad base to thorax and elytra (if the base of thorax is narrow, *M. pele*, *montivagus*, *bembidicus*, there is no neck to it)	species 19 to 30.
(*a*) sculpture of elytra abnormal, the foveoles being more or less increased in number or size	species 19 to 22.
(*b*) sculpture simple	species 23 to 30.

(1) *Mecyclothorax pusillus* sp. nov.

Angustus, subparallelus, piceus, antennis pedibusque rufo-testaceis, elytrorum marginibus suturaque rufescentibus, apice testaceo; thorace fortiter transverso, ante basin haud constricto, basi lata, punctata; elytris subtilissime striatis, striis subtiliter punctatis, externe desinentibus, apicem versus obsoletis. Long. $3\frac{1}{4}$—$3\frac{3}{4}$ mm.

Plate VII. fig. 4.

The smallest of the group, and readily recognised by the fine very regular series of punctures on the elytra; of these series there are six, but the outer one is very fine, and much abbreviated, and there is no trace of a seventh; at the tip only the sutural two can be seen. The thorax is not greatly narrower than the elytra, and is more gently narrowed behind than in most of the other species, the base being broad. Twenty-three specimens.

This is only likely to be confounded with *M. rusticus*, but the much narrower elytra, with the punctures very fine and more obliterated at the tip, readily distinguish it: there is almost a complete absence of real striation, the sculpture consisting of series of fine punctures. This distinguishes the species from *M. angusticollis*.

HAB. Maui. Haleakala: 9000—10000 ft., April 1894; "above the forest," one specimen (Perkins). No. 1263, Prof. Thaxter for Laboulbeniaceae.

(2) *Mecyclothorax nubicola*, Blackburn.

Cyclothorax nubicola Blackburn, Ent. Mo. Mag. xv. 1877, p. 156.

Cyclothorax rupicola (in error) Sharp and Blackburn, Trans. Dublin Soc. (2) III. 1885, pp. 216 and 276.

This insect is known only from a single specimen found by Mr Blackburn 25 or 30 years ago. I have examined this specimen, and find that it is nearest to *M. pusillus*, but is considerably larger and more elongate, and of a pale reddish colour. It may prove to be a very aberrant form of *M. pusillus* but at present we have nothing to connect the two.

HAB. Maui. Haleakala (Blackburn).

(3) *Mecyclothorax rusticus*, sp. nov.

Colore variabilis; piceus vel piceo-rufus, interdum nigricans, elytrorum sutura marginibusque rufis; haud angustus; antennis pedibusque rufo-testaceis; thorace transverso, basin versus sat angustato, ante basin haud constricto; elytris seriebus 4 vel 5 punctorum minus subtilibus sed ante apicem obsolescentibus, ibidem striis subtilibus. Long. 4 mm.

The after body in this species is of more oblong form than it is in *M. micans*, the thorax is rather longer and less rounded at the sides, and the elytral punctuation is coarser and more effaced. The colour is usually obscure red, or piceous, but sometimes is black. *Thriscothorax apicalis* is also very similar to *M. rusticus*, but besides the chaetotaxal distinction it always has a remarkably definite pale patch at the tip of the elytra. *M. pusillus* is smaller and narrower and has series of punctures, rather than punctate striae on the elytra. Many specimens.

HAB. Maui. Haleakala. About the crater; in April and October (Perkins).

(4) *Mecyclothorax micans* Blackburn.

Cyclothorax micans Blackburn, Ent. Mo. Mag. xv. 1877, p. 122.

Niger, nitidus, subdepressus, antennis rufis, pedibus flavis; thorace fortiter transverso, lateribus multum rotundatis, ante basin nullo modo constricto, basi lata; elytris latiusculis, nitidis, seriebus 4 vel 5 punctorum ad apicem desinentibus; pedibus debilibus. Long. 4 mm.

The varieties of *M. rusticus*, that are short in form, and dark in colour, resemble this a good deal; but *M. micans* can be readily distinguished by its shorter form, shining black surface, yellow legs, and shorter thorax. The legs are always shorter and more slender than they are in *M. rusticus*. The elytral punctuation is of a kind that reappears quite a number of times throughout the allied genera, it consists of series of punctures abbreviated at both base and apex (the sutural one being however entire) and becoming shorter gradually so that the fifth or sixth can scarcely be detected: these punctures are usually placed in indistinct striae. Fifty or sixty specimens.

Mr Blackburn's description is not very characteristic. The specimen in his collection at the British Museum is however this species. He originally captured two specimens, but I have not been able to ascertain the fate of the second individual. In this very difficult genus it is possible that the two specimens alluded to may have been different species, it being in several cases very difficult to decide from single specimens.

Hab. Maui. Haleakala, 9000 ft. (Blackburn). Haleakala, 9000—10000 ft. (Perkins).

(5) *Mecyclothorax microps* sp. nov.

Rufo-piceus, antennis, palpis pedibusque testaceis; prothorace vix transverso, lateribus posterius leniter angustatis, angulis posterioribus brevissime denticulato-rectis; elytris quinque-striatis, striis punctatis. Long. 4¼ mm.

This obscure form appears by the shape of the thorax to connect the *M. rusticus* group of species with *M. laetus*. It is I think nearer allied to the first-mentioned forms, from which it is distinguished by the thorax being considerably narrower in proportion to its length, as well as by a different shape of the elytra and other parts. The head is narrow. The thorax is considerably narrower than the elytra, with the sides gently rounded and but little narrowed behind, where they are however slightly sinuate, there is an extremely minute projection of the setigerous hind angle and this prevents the angle from being obtuse; the surface is shining, the lateral margin very fine, the median channel rather deep, not extending to the base, the transverse anterior impression less deep: the length of the thorax is only very slightly less than the width. The elytra are moderately rounded at the shoulders, and each bears five striae, these striae are not very definite at the base and are fine at the tip but they are very distinctly punctate, and there is a subobsolete sixth stria. We have only one specimen, in rather bad preservation.

Hab. Molokai. Kalawao, 1st August, 1893 (Perkins).

(6) *Mecyclothorax obscuricornis*, sp. nov.

Nigricans, elytris late, sed minus definite testaceo-limbatis, pedibus antennisque fusco-testaceis, his ad basin anguste rufis; prothorace transverso, basi angusta, angulis posterioribus obtusis; elytris profunde striatis, striis fere impunctatis. Long. 3½ mm.

A most obscure little form; resembling most *T. obscuricolor*, but with a shining surface, and broad yellow outer margin on the elytra; bearing also some resemblance to *M. daptinus*, but with the thorax not strigose, and the elytra less deeply striate. The antennae are obscure in colour, only the basal joint being yellow. Thorax shining; transverse, much narrowed behind, hind angles obtuse or almost acute on account of the minute prominence for the insertion of the seta; the surface has a just perceptible metallic tinge; the transversion impression and median channel definite. The elytra are yellowish but each has a very large black patch occupying the greater part of the surface, and leaving the suture pale, as well as the lateral margins; the striae are deep, and a very feeble punctuation can be traced. The legs are entirely yellow. We have only two examples of this species, but I have recently received a third taken by a friend of Mr Perkins on Haleakala last year. It is a marked variety, very small, and has the black colour of the upper surface very definite without any brassy tinge, and the striae distinctly punctate.

HAB. Maui. Haleakala, 4000—5000 ft., April 1894 (Perkins).

(7) *Mecyclothorax angusticollis*, Blackburn.

Cyclothorax angusticollis Blackburn, Ent. Mo. Mag. xv. 1877, p. 156.

One of the smallest forms; red, largely picescent or black, leaving the margins of the thorax and elytra red; the latter have the striae deep, but the outer one (the seventh) obsolete; the striae are punctate; the antennae and legs very short. The thorax is not narrow, but strongly transverse. The species may be readily distinguished from *M. pusillus* by the colour and by the deep striation. *M. obscuricornis* is similar but has the thorax strongly narrowed behind. About 30 specimens.

HAB. Maui. Haleakala (Blackburn). Haleakala, 400—500 ft., on several occasions in the first half of the year. Under stones, in moss etc. (Perkins).

(8) *Mecyclothorax bicolor*, sp. nov.

Rufus, nitidus, elytris late nigricantibus; prothorace fortiter transverso, lateribus rotundatis, basin versus parum angustato, basi lata, angulis posterioribus denticulato-rectis; elytris profunde striatis, striis subcrenatis sed haud punctatis. Long. $3\frac{1}{2}$ mm.

This is only half the size of *M. bradycellinus*, the species it most resembles. It is broader than *M. angusticollis*, with longer antennae and legs and rather more rounded sides to the thorax, and has deeper striation on the elytra; the form of the thorax is quite different from that of *M. daptinus* (which has very deeply striated elytra). The thorax is not greatly narrower than the elytra; its anterior impression and the median channel are deep, the punctate basal area is small and bears but few punctures. The elytra are shining, blackish, with the suture and outer margin red, but not red at the tip; the eight striae are entire and very deep. The under surface entirely red.

We have only two examples of this species but it is clearly distinct from any other, and seems to come very naturally between *M. angusticollis* and *M. bradycellinus*.

HAB. Molokai, 4000 ft., June 1896 (Perkins).

(9) *Mecyclothorax bradycellinus*, sp. nov.

Sat elongatus, nitidus, rufus, thorace medio et disco elytri singuli picescentibus; thorace fortiter transverso, lateribus rotundatis, angulis posterioribus perfectis sed subobtusis; elytris profunde striatis, striis punctatis. Long. 4½ mm.

Plate VII. fig. 5.

This is another peculiar and distinct species; the seta at angle of the thorax is but small, and the orifice it leaves on removal from the hind-margin is so slight that the species may without a careful examination be only too probably referred to *Thriscothorax*. The thorax is very strongly transverse, but little narrower than the elytra, a good deal rounded at the sides and narrowed behind, but without constriction; the anterior impression definite, the median channel continued to the base; the sides are much spread out, but not much turned up; their colour is much more dilute than the picescent middle parts; the base moderately punctate. Elytra rather long, each picescent or black with the suture and margins red; the striae are very deep, and all the eight are entire from the base to the extremity: they are distinctly punctate or crenate. Three specimens.

HAB. Molokai, 4000 ft., June 1896 (Perkins).

(10) *Mecyclothorax laetus*, sp. nov.

Rufus, elytris (marginibus exceptis) interdum picescentibus, antennis, palpis pedibusque testaceis; prothorace ad basin breviter constricto, angulis posterioribus perfecte rectis; elytris subtiliter striatis, striis subtilissime punctatis, externis perobsoletis; antennis pedibusque brevibus. Long. 4—4½ mm.

Allied to *M. konanus* and *cymindicus* though with very different sculpture. Antennae short, yellow. Head rather narrow. Thorax with the base narrower than the front, with the sides rounded and sinuate behind, so that there is present a distinct basal constricted part; the transverse anterior impression is obsolete, the median channel distinct, the base flat and but little punctate. The sides and suture of the elytra are paler than the discoidal parts; the striation is very fine, but even the seventh stria can be detected. A small series.

This must not be confounded with *M. rusticus*, which has no constricted base of the thorax, and has also the punctures of the elytral striae much coarser.

The species has an extreme resemblance to *Thriscothorax laetus*, but it usually has the base of the thorax more distinctly constricted: this character is however variable, and it may be that, as I have suggested may be the case with *M. robustus* and *T. robustus*, they are dimorphic forms of one species. It seems probable that, however this may be, the two rarely occur together. The following are the particulars about our small series of 13 specimens. Haleakala, 5000 ft., 1 April 1894 No. 371; two specimens, one of these is a most remarkable aberration, the seta on the left side coming not from the hind angle but from a little distance in front of the normal situation, the specimen is small, very narrow, with strongly cordate thorax: Haleakala, Maui, 4500—6000 ft., March 1894 No. 383; one specimen, highly aberrant and possibly a distinct species, being large, convex, with elongate convex thorax and more distinct striae: Haleakala, 4000 ft., May 1896 No. 597; one specimen: Haleakala, 5000 ft., October 1896 No. 661; seven specimens: Haleakala, 4000 ft., October 1896 No. 680; one specimen: Lahaina, W. Maui, December 1896 (Koebele); one specimen, abnormal, the thorax formed as in *T. laetus* though the setae are perfectly developed. For particulars as to *Thriscothorax laetus* see that species.

HAB. Maui. Haleakala and Lahaina, as above (Perkins).

(11) *Mecyclothorax konanus*, sp. nov.

Rufo-piceus, elytris subaenescentibus, antennis rufis, basi, palpis pedibusque testaceis; prothorace transverso, haud cordato, angulis posterioribus minutissime prominulis: elytris profunde striatis, striis septima et octava subobsoletis. Long. 4½ mm.

Closely allied to *M. cymindicus*, but with the thorax not all sinuate at the sides behind, the posterior angles being only made prominent and rectangular by a very minute projection of the angle itself. The elytra are much less perfectly sculptured, the striation being less deep, and the outer striae indistinct. The thorax is much narrowed behind, so that the width at the base is less than that at the front angles. Two specimens.

HAB. Hawaii. Kilauea, August 1895 (Perkins).

(12) *Mecyclothorax cymindicus*, sp. nov.

Rufescens, supra subaeneus, antennarum basi, palpis pedibusque testaceis; prothorace transversim subcordato, angulis posterioribus rectis; elytris regulariter perprofunde striatis, striis punctatis. Long. 4½ mm.

A distinct species; rather flat; distinguished by the rufescent colour, which becomes rather strongly brassy above and by the remarkably regular and deep striation. The antennae are rather short and stout. The thorax is moderately rounded at the sides and narrowed behind, and just before the hind angles is sinuate, so that the angles are rectangular, though there is no real constriction; the base has a few punctures and is depressed on each side, the median channel and the anterior impression are deep, the latter feebly strigose. The elytra are rather broad at the shoulders, and all the striae are remarkably deep, distinct and regular from base to apex; a feeble crenation or punctuation is seen in the depth of each stria. Legs short and stout. Six specimens.

HAB. Maui. Haleakala, 5000 ft., October 1896 (Perkins).

(13) *Mecyclothorax daptinus*, sp. nov.

Nigricans, antennarum basi palpis pedibusque testaceis; prothorace transverso, basin versus fortiter angustato, supra transversim rugoso; elytris ad latera late testaceo-limbatis, profunde striatis, striis haud punctatis. Long. $3\frac{1}{8}$ mm.

One of the smallest of this division; very distinct. Antennae dark, yellow only at the extreme base. Thorax small, very strongly narrowed behind, so that the base is narrow, hind angles obtuse not at all rounded; the upper surface covered with fine transverse wrinkles, the median channel distinct, the anterior impression and the basal sculpture indefinite, the lateral margin but little raised even at the hind angle. Elytra strongly rounded at the shoulders, yellow, each with a very large black mark near the suture (the two black marks separated only by the yellow suture), very deeply and, for the size of the insect, broadly striate, so that the striae appear crowded. Undersurface of head reddish. Legs clear yellow; ventral segments more or less yellow at the hind margins. Forty specimens.

HAB. Maui. Haleakala, 5000 ft., April and June 1894 (Perkins).

(14) *Mecyclothorax inaequalis*, Blackburn.

Cyclothorax inaequalis Blackburn, Ent. Mo. Mag. XV. 1877, p. 157.

A beautiful and very distinct insect; the upper surface of a peculiar submetallic coloration and very dull; the elytra have several foveoles on the third interstice and others on the fifth; the striae are subobsolete and irregular, and are rendered more indistinct by the peculiar "bloom" of the surface. The thorax is transverse with a somewhat narrow base, and a short constricted basal part, with the hind-angles rectangular. The species may therefore be considered as one with cordate thorax. It is apparently very rare.

HAB. Maui. Haleakala, 4000—5000 ft. (Blackburn, Perkins).

(15) *Mecyclothorax vulcanus*, Blackburn.

Cyclothorax vulcanus Blackburn, Ent. Mo. Mag. XVI. 1879, p. 108.

I can give but little information as to this species. I have before me four individuals that I refer to it with confidence. According to them it is a species with a general resemblance in colour and form to *Thriscothorax unctus* but with a longer thorax, the head and thorax are red or nearly black, as the case may be; the thorax is rather long, gently narrowed behind, with however only an imperfectly formed constricted basal part. The elytra are shining, rather flat, with very definite yellow margin, and with about five series of fine punctures, the outer two of which are extremely abbreviated and indistinct; the legs are red, with a broad infuscation of the tibiae, which however is variable.

Besides these there are four or five specimens that may belong to the species, but if they do it must be an extremely unstable one. Mr Blackburn says if he understands it right, "the species has the unusual character of extreme variableness in the striation of the elytra."

HAB. Hawaii. Mauna Loa, under bark near the mouth of the crater Kilauea (Blackburn). Kilauea, in August 1895, 1896; Kona, Sept. 1892, 4000 ft. (Perkins). The specimens from Kona are those that doubtfully pertain to the species.

(16) *Mecyclothorax ovipennis*, sp. nov.

Fusco-testaceus, antennarum basi, palpis pedibusque testaceis, elytris ad apicem late pallidis; prothorace cordato, basi elongata; elytris ovatis, convexiusculis, subtiliter striatis, striis vix perspicue punctatis. Long. 4—4½ mm.

Plate VII. fig. 6.

A rather narrow species, less dark in colour than usual, with narrow, convex elytra, and the neck formed by the base of the thorax unusually long. The thorax is much rounded at the sides, near the base parallel-sided, the hind angles rectangular, almost acute; the surface somewhat shining, very finely wrinkled on the disc; the anterior impression obscured by longitudinal strigosities, the median channel distinct, the base not much punctate. Elytra narrow and convex, almost regularly oval, their colour in large part dark, but largely yellow at the tip, the yellow colour extending somewhat forwards along the suture and sides; they are finely striate, six striae on each are distinct, the outer or seventh stria indistinct. Legs pale yellow.

About fifty specimens.

The species varies much as to the depth of the dark colour, but not much in other respects.

HAB. Maui. Haleakala, 4000—6000 ft., March 1894 (Perkins).

Nos. 1266, 1267, Prof. Thaxter for Laboulbeniaceae.

(17) *Mecyclothorax iteratus*, sp. nov.

Elongatus, niger, elytris viridi-micantibus, palpis, antennarum basi pedibusque testaceis, tibiis plus minusve fuscescentibus, antennis extrorsum obscuris; thorace elongato, basi constricta subelongataque, lateribus tenuissime marginatis; elytris fere estriatis, sericeo-micantibus. Long. 5½—6 mm.

Head broad, with prominent eyes, basal three joints of antennae pale red, the others more obscure. Thorax elongate, with a comparatively long and abrupt basal part; shining black, the base much punctate, the anterior impression marked with longitudinal strigosities, the median channel fine. Elytra rather elongate, narrow at the shoulder, of a peculiar greenish-black colour, with a silky reflection, almost without sculpture; traces of series of very fine punctures can sometimes be detected, as well as a slight appearance of ridges that have been effaced, and so scarcely separate grooves that are hardly perceptible. Legs very slender, yellow, with the knees and tibiae more or less infuscate.

This species has a superficial resemblance to *Metrothorax haleakalae*, but differs in many points, independently of the generic character. The thoracic setae are very long, but are only too easily removed after death. The small series of ten examples shows very little variation.

HAB. Maui. Haleakala, 4000—5000 ft., on several occasions (Perkins).

(18) *Mecyclothorax oculatus*, sp. nov.

Elongatus, niger, elytris viridi-micantibus, apice summo testaceo, antennis palpis pedibusque rufis; thorace elongato, basi constricta subelongataque, lateribus tenuissime marginatis, margine flavescente; elytris subtiliter seriatim punctatis. Long. 5½—6 mm.

Closely allied to *M. iteratus*, but not so deeply black in colour, the elytral tips and the margin, and even the thoracic margin, flavescent, the elytra with five distinct, abbreviated series of fine punctures. Besides this the form is a little different, the elytra being broader behind the middle.

One of the finest of the species; the head broad with largely developed eyes. The constricted basal part of the thorax elongate, the anterior impression strigose, the median channel fine.

This species was discovered in 1902 by Mr Perkins; he captured two specimens on Molokai at an elevation of about 4000 ft.

HAB. Molokai; as above (Perkins).

(19) *Mecyclothorax longulus*, sp. nov.

Angustus, haud nitidus, nigricans, supra capite medioque thorace picescentibus; thorace lato, valde transverso, fere elytrorum latitudine, angulis posterioribus obtusis; elytris subtiliter striatis, foveolis quatuor sat magnis, et ante apicem impressione utrinque. Long. 4½ mm.

Allied to *M. sobrinus*, yet very distinct, smaller, narrower, with the thorax almost as broad as the elytra, and no metallic lustre. We have only one specimen; it is a male with sexual characters similar to those of *M. sobrinus*, the front tarsi being distinctly dilated and the front femora much thickened. The elytra get a little broader from the shoulders to behind the middle. The striation of the elytra is very shallow except at the tip, the outer striae being obsolete except there. The four foveoles of the elytra are larger than normal, but in this respect are not at all comparable with the large deep depressions of *M. multipunctatus* and *M. sobrinus*. One specimen.

HAB. Maui. Haleakala, 5000 ft., 6. IV. 1894 (Perkins).

(20) *Mecyclothorax multipunctatus*, Blackburn.

Cyclothorax multipunctatus Blackburn, Ent. Mo. Mag. XV. 1878, p. 122.

Readily distinguished from *M. sobrinus* by its smaller size, more shining elytra, and the fact that the elytra foveoles are increased in number by additions placed laterally. It is apparently extremely rare, only four examples being known.

HAB. Maui. Haleakala, two examples, at an elevation of about 4000 ft. (Blackburn). Haleakala, 4500 ft., 28. III. 1894, and 4000 ft. in May 1896 (Perkins).

(21) *Mecyclothorax interruptus*, sp. nov.

Elongatus, nigricans, antennarum basi, palpis pedibusque testaceis, elytris fuscis, margine late rufescente; prothorace magno, transverso, basin versus sat angustato, angulis posterioribus denticulato-rectis; elytris profunde striatis, ultra medium striis tertia et quarta interruptis, interstitiis tertio et quinto propter hoc conjunctis. Long. 5½ mm.

A very peculiar form, exhibiting as it were the earliest form of the peculiarity of sculpture that is developed in such a remarkable manner by *T. perkinsi* and *T. laticollis*. The antennae are rather long, dusky, the basal joint yellow, the following two dusky reddish. The thorax is broad, not greatly narrower than the elytra, blackish, with the sides narrowly yellow, and the base somewhat yellowish; the hind-angles would be obtuse, were it not that the angle itself is a little prominent and sharp; the anterior depression is very deep, and so is the median channel, but it is not continued to the base. The elytra are deeply striate, all the eight striae being entire, they are not punctate, though their margins are slightly waved; the anterior foveole on the third interstice is very definite, the posterior foveole is followed by an irregularity of sculpture, an isthmus connecting the third and fourth striae; there may be one or two other similar irregularities of sculpture present; the colour is blackish about the suture, with the outer margin broadly reddish.

Var. *integer* var. nov. Formae typicae affinis; elytrorum striis tertia quartaque haud interruptis.

Var. *dubius* var. nov. Formae typicae affinis sed minor, supra aenescens, elytris minus profunde striatis, striis tertia quartaque haud interruptis, margine externo angustissime flavo.

These three varieties were not found in company. The type form was found in May 1896, number 680; the var. *integer* in October 1896, the var. *dubius* in May 1896, but as numbers 622 and 623.

HAB. Maui. Haleakala, 4000 ft., May and October 1896 (Perkins).

(22) *Mecyclothorax sobrinus*, sp. nov.

Nigricans, supra fusco-subaeneus, parum nitidus, antennarum basi, palpis pedibusque testaceis, femoribus fusco-plagiatis; prothorace fortiter transverso; elytris foveolis quatuor magnis, et versus apicem utrinque impressis, subtiliter striatis, striis impunctatis, externis obsolescentibus. Long. 6—6½ mm.

Antennae elongate; head broad. Thorax very strongly transverse, the sides but little rounded, only moderately narrowed behind, the hind angles slightly prominent so as to be minutely rectangular; the surface with a dull silky lustre, the transverse impression and the median channel distinct, the base but little punctate, the lateral margin moderate. Elytra rather long, not much rounded at the shoulders, of a peculiar pale-reddish, obscure colour with slight metallic reflections, the foveoles very large and deep; the ante-apical impression very strongly marked.

In the male the femora are thicker, the front femora being very thick; the front tarsi are more perceptibly dilated than they are in most of the other species.

The four examples obtained of this remarkable species are rather immature and in bad condition. It is doubtless distinct from *M. multipunctatus*, the elytral foveoles not being laterally duplicate. One individual has a supernumerary foveole on the right elytron placed some distance in front of the anterior foveole.

HAB. Maui. Haleakala, 5000 ft., in March and April 1894 (Perkins).

(23) *Mecyclothorax montivagus*, Blackburn.

Cyclothorax montivagus Blackburn, Ent. Mo. Mag. xv. 1878, p. 122.

Olisthopus insularis Karsch (nec Motsch.), Berlin. Ent. Zeit. xxv. 1881, p. 1.

This species is easily recognised. It is of rather large size, and depressed form, with short broad head, strongly transverse thorax, which is greatly rounded at the sides and much narrowed behind, and each elytron has six abbreviated series of coarse punctures. It is extremely variable, and I have noticed several curious aberrations of sculpture and colour.

It appears to be one of the commonest Carabids on Haleakala; Mr Perkins has fifteen records of it from there, and it occurs from 4000 to 10,000 ft. It would be very remarkable if it should also occur on the island of Hawaii. Mr Perkins has a specimen labelled "Kilauea, Hawaii, without date." Thus considerable doubt attaches to this individual. Curiously the species is also recorded from Hawaii in the papers by Mr Blackburn and myself, Tr. Dublin Soc. (2) III. 1885, pp. 214 and 276. I can, however, find no direct record of its occurrence there, by Mr Blackburn, and I think this is therefore probably an error, arising maybe from a hasty determination of *M. pele*, the Hawaiian ally of *M. montivagus*. Under these circumstances I shall consider *M. montivagus* as a species peculiar to the island of Maui until satisfactory evidence of its occurrence on Hawaii is forthcoming.

M. montivagus in its general appearance bears a great resemblance to the Australian and New Zealand species *Cyclothorax insularis*, and, as noticed above, was recorded by Karsch as being actually the antipodean species. I find, however, that the wings in it are as fully aborted as they are in the other Hawaiian forms, whereas they are perfectly developed in the antipodean forms. Whether the Australian and New Zealand species are really one, as has been supposed, only indirectly concerns us, but I may mention that I believe they will prove to be distinct.

HAB. Maui. Haleakala, 4000 ft. (Blackburn) (Karsch as *Olisthopus insularis*). Haleakala, 4000—10,000 ft. on several occasions (Perkins).—? Hawaii (cf. above).

No. 1269, Prof. Thaxter for Laboulbeniaceae.

(24) *Mecyclothorax pele*, Blackburn.

Cyclothorax pele Blackburn, Ent. Mo. Mag. XVI. 1879, p. 107.

This is undoubtedly closely allied to *M. montivagus*, though its recognition is extremely easy by "facies" when the two are known. *M. pele* is a little narrower and considerably more convex transversely, its legs and antennae are considerably stouter, and are more red than yellow, the legs are often blackened on the femora and tibiae, and the surface is intensely black, with a glassy appearance: the thorax is much narrower and more convex, and the hind angles are less prominent: the punctures of the elytra are larger and deeper. Although *M. montivagus* is variable, the variation does not tend towards *M. pele*, and there is no example about which a mistake could be possible.

M. pele is apparently rare, but has been found several times at the crater of Mauna Loa, called Kilauea, in August and September.

HAB. Hawaii. Kilauea (Blackburn and Perkins).

(25) *Mecyclothorax bembidicus*, sp. nov.

Robustus, niger, elytris obscure aeneis, antennarum basi, palpis pedibusque testaceis, his plus minusve fuscescentibus; prothorace transverso, basin versus angustato, haud sinuato, angulis posterioribus obtusis; elytris profunde striatis, striis integris, crenato-punctatis. Long. 5¼ mm.

A very distinct species; differs from *M. pele* by the deep striae of the elytra, which extend from base to tip, and from *M. robustus* by the deep striation and the unsinuate sides of the thorax. The elytra are very broad, about twice as broad as the thorax, and their eight deep striae are also rather broad, and are very deep even at the tip, they are of a brassy colour, but dull. The thorax is a good deal narrowed behind, the anterior impression is obliterated, and the median channel is not deep, and does not extend to the base. Eighteen specimens.

HAB. Hawaii. Kilauea, 4000 ft., August 1894 (Perkins).

(26) *Mecyclothorax aeneus*, sp. nov.

[illegible] aeneus, antennarum basi, palpis pedibusque rufis, femorum basi nigra; prothorace lateribus sinuatis, angulis posterioribus rectis; elytris regulariter, sat profunde octostriatis, striis fere impunctatis. Long. 5½—6½ mm.

Antennae rather long and slender. Thorax large, not strongly transverse, the sides slightly round in front and sinuate behind, the hind angles very sharply marked, rectangular, the base punctate, rather deeply impressed on each side; the median channel very distinct, the anterior impression quite obsolete. The striation of the elytra very regular, complete, but not deep, the four foveoles very small.

We have only two specimens of this species, which is not closely allied to any other. The posterior one of the thoracic setae is not present in these specimens—which are rather worn—but the spots of their insertion—on the margin at the hind angle—are very distinct.

HAB. Maui. Haleakala, 4500—6000 ft., March 1894 (Perkins).

(27) *Mecyclothorax cognatus*, sp. nov.

Niger, supra aeneus, antennarum basi, palpis pedibusque testaceis, tibiis fuscescentibus; prothorace fortiter transverso, lateribus rotundatis, posterius fortiter angustatis, angulis posterioribus rectis; elytris regulariter, sat profunde striatis, striis fere impunctatis. Long. 5¼ mm.

Very closely allied to *M. aeneus*, but with shorter thorax, and a more distinct basal constriction of this part; the elytra more oval, less oblong in form, rather more deeply striated. I think a distinct species, though I have seen only one specimen.

HAB. Maui. Haleakala, 5000 ft., April 1894 (Perkins).

(28) *Mecyclothorax robustus*, sp. nov.

Convexus, nitidus, piceus, (abdomine dilutiore interdum flavescente), supra nigropiceus, elytris aeneomicantibus, marginibus pallidis, antennarum basi, palpis pedibusque flavis; thorace lateribus rotundatis, angulis posterioribus breviter rectis; elytris profunde striatis, striis evidentius punctatis. Long. 6 mm.

One of the largest *Mecyclothorax*, with the shoulders of the elytra less square than in *M. platysminus*; the after-body convex and heavy, the head narrow in comparison with it. The thorax is very shining, the median channel very distinct, the anterior impression definite, obsoletely strigose, the base punctate, the hind angles very definite, rectangular. The striae of the elytra are all deep, definite and distinct from base to apex, and their punctuation is more distinct than it is in most of the similar forms; the suture behind, and the margins, especially at the tip, reddish.

Our small series of examples exhibits a moderate amount of variation as to s. and blackness; the abdomen is nearly always flavescent. The striation of the elytra is a little less deep in the small, dark individuals.

The only distinction between *Mecyclothorax robustus*, and *Thriscothorax robustus*, beyond the generic character, is a slight difference in the form of the hinder part of the thorax; this in *M. robustus* is rather less constricted behind, and the hind angle is slightly more acute, the side margin there being less directed upwards. This distinction is but slight, and is less than occurs as variation in some of the allies, so that it is quite probable that the two may be dimorphic forms of one species. They seem to be, so far as I can judge, very closely associated geographically. The locality numbers for this species are 363, 599, 605, 621, 622, 679, 680.

Hab. Maui. Haleakala, on several occasions, at an elevation of 4000 or 5000 ft. (Perkins).

(29) *Mecyclothorax occultus*, sp. nov.

Robustus, niger, supra aeneus, parum nitidus, antennarum basi, palpis, pedibusque rufis; prothorace fortiter transverso, lateribus rotundatis, angulis posterioribus fere rectis; elytris minus profunde striatis, striis impunctatis, externis obsoletis. Long. 5½ mm.

Distinguished, in this group of large forms with brassy surface and broad base to the thorax, by its very short thorax, and the slighter striation of the elytra. The thorax has a definite red margin, and the sides are sinuate exactly in front of the hind angles as if to prevent these from being obtuse; the anterior impression and median channel are distinct, and the base is much sculptured. The striation of the elytra is quite distinct, but the outer striae are obsolete, and all except the sutural one are very faint at the extreme base. One specimen.

Hab. Molokai. 4500 ft., June 18th, 1893 (Perkins).

(30) *Mecyclothorax amaroides*, sp. nov.

Major, robustus, niger, supra aeneus, antennarum basi, palpis pedibusque rufis, illis extrorsum, femorum basibus tibiisque fuscescentibus; prothorace fortiter transverso, ad basin breviter constricto; elytris striis omnibus integris, profundis, punctatis. Long. 7 mm. Plate VII. fig. 7.

The largest insect of the Hawaiian Pterostichides, and one of the most distinct species. Head very broad. Thorax strongly transverse, with strongly rounded sides, a short basal constriction and rectangular hind angles; very shining, the anterior impression moderately, the median channel very, distinct, the broad base much punctate; the lateral margin rather strongly explanate, more or less rufescent. Elytra large, oblong, the shoulders but little rounded, all the eight striae deep from base to apex and rather strongly punctate; shining, brassy, the raised margin and tip rufescent. Five specimens.

The robust after-body and general appearance led me to suppose that the species is winged; but examination shows the contrary, the wings being as completely vestigial as they are in all the other species of this group of genera.

HAB. Molokai. On the boggy plateau below the densest forest, about 4000 ft. (Perkins).

THRISCOTHORAX, gen. nov.

Prothorax utrinque seta unica, paulo ante medium lateris sita. Alae vestigiales.

Type *T. unctus*.

Like *Mecyclothorax* this is a most difficult complex to tabulate; but the following key may help any one wishing to determine species of it.

1. Thorax cordate (i.e. with a distinct constricted basal part and sharp hind angles, Plate VII. fig. 3), the base usually narrow ....species 1—13.
2. Thorax not cordate, shorter and usually broader; the true base of the elytra (i.e. the part between the incurved lateral margins of the two sides) and base of the thorax narrower than in group 4; hind angles sometimes (not always) obtuse .. ..species 14—21.
3. Species difficult to place; base of thorax moderately broad, without neck, hind angles obtuse or very nearly so..species 22—24.
4. Base of thorax comparatively broad; robust and comparatively large insects; width of elytra across shoulders considerable ....species 25—29.

(1) *Thriscothorax unctus*, Blackburn.

Cyclothorax unctus Blkn., Ent. Mo. Mag. XVII. 1881, p. 227.

This species has in most individuals a slight brassy tinge on the upper surface, the elytral margins are strongly elevated and always yellow, the thoracic elevated margins are generally yellowish. There is but little variation in the shape and form of the thorax, which is transverse, abruptly narrowed and constricted behind, with very definite, rectangular hind angles. The striation is rather variable; the sutural stria is present, and behind is moderately deep, in front it is often distinctly punctate, the more external striae are always indistinct, and they also may, one or two of them, be punctate; very rarely can more than four striae be seen, on each wing-case. The length is 4¼ to almost 5 mm. About 100 specimens.

HAB. Maui. Haleakala (Blackburn). Haleakala, 4500—6000 ft., on several occasions (Perkins).

(2) *Thriscothorax filipes*, sp. nov.

Niger, parum convexus, elytris subviridescentibus, antennis, palpis pedibusque flavis; prothorace minus fortiter transverso, lateribus rotundatis, ad basin constricto; elytris levissime striatis. Long. 5—5¼ mm.

Similar to *T. unctus*, but quite distinct by its longer thorax, which is much less narrowed behind the middle. The basal constricted part of the thorax is rather long, and the hind angles are exactly rectangular: the anterior transverse impression is deep, and the basal punctuation deep, the lateral margin is not strongly elevated. The elytra have usually a faint greenish tinge, and are not polished: their striation is very slight and the striae are not punctured. The legs and antennae are slightly longer than they are in *T. unctus.* Twenty-one specimens.

HAB. Lanai. Halepaakai, July 1894, mts. Koele (Perkins).

(3) *Thriscothorax gracilis,* sp. nov.

Piceus, vel nigricans, thoracis elytrorumque marginibus lateralibus, illorum sutura, antennis palpis pedibusque testaceis; thorace parum transverso, ad basin constricto, angulis posterioribus rectis; elytris subtiliter striatis, striis fere impunctatis, ad apicem sat profundis. Long. 5 mm.

Allied to *T. unctus* and similar in colour, but with a longer and more slender thorax and a quite different striation of the elytra. The thorax is a good deal narrowed behind, with a distinct narrow basal portion and sharply rectangular angles, the median channel deep, the anterior transverse impression well-marked, the base strigose punctate; the lateral margin moderately elevated. Elytra with a faint brassy tinge, the lateral margins rather broad, yellow, the fine striation rather deep at the tips, the sixth stria is obsolete the other five distinct. Thirteen specimens.

This is smaller than *T. filipes* with a narrower thorax and with elytral striation distinct at the tip.

HAB. Hawaii. Kona, 4000 ft., September 1892 (Perkins).

(4) *Thriscothorax palustris,* sp. nov.

Niger, parum nitidus, antennis, palpis pedibusque fusco-rufis; prothorace transverso, lateribus rotundatis, ad basin constricto, angulis posterioribus perfectis; elytris striis quinque abbreviatis et punctatis, sutura posterius marginibusque rufescentibus. Long. 5 mm.

Plate VII. fig. 3, thorax.

Allied to *T. unctus*, of darker colour, differing a good deal in outline and readily distinguished by the five distinct though abbreviated series of punctures on the elytra. The thorax is much rounded at the sides, and narrowed behind, the constricted basal part not short, the angles rectangular and definite; the anterior depression deep and definite, but not sculptured, the base punctate: the median channel well-marked. The sutural stria of the elytra is deep at the tip, the second stria extends nearly to the tip though very fine there, outside this each stria is more abbreviate; each of the striae commences as a series of punctures. The legs are dark yellow, more or less infuscate beyond the femora. The margin of the elytra is distinctly red, and the same colour is indistinctly present on the lateral margin of the thorax. About forty specimens.

HAB. Molokai; mts. May 22, 1893 (Perkins).

(5) *Thriscothorax modestus*, sp. nov.

Piceo-niger, parum nitidus, palpis pedibusque testaceis, antennis, prothoracis elytrorumque marginibus elevatis rufis; elytris subaenescentibus parum nitidis, subtiliter striatis, striis haud punctatis; prothoracis lateribus rotundatis, basi constricta, angulis posterioribus rectis. Long. $3\frac{3}{4}$—4 mm.

This is considerably smaller than *T. filipes*, it is a little more deeply striated on the elytra, and the outer striae are less obliterated, seven striae can be counted in addition to the deep marginal stria, the suture of the elytra and its outer margin are red, and the lateral margins aad even the base of the thorax are reddish. The antennae are slender, yellow at the base, darker beyond. The head is rather broad. The thorax is rounded at the sides, and the hind angles are sharply rectangular, the base is moderately punctate, the median channel well-marked, the anterior transverse depression not deep and without distinct sculpture. There is no greater extent of red at the tips of the elytra than what is due to the junction of the red colour of the suture and margins. Five specimens.

Hab. Maui. Haleakala 4000—5000 ft. in March and April 1894 (Perkins).

(6) *Thriscothorax cordaticollis*, Blackburn.

Cyclothorax cordaticollis, Blackburn, Ent. Mo. Mag. xv. 1878, p. 156.

The two specimens in the British Museum indicate a species similar to *modestus*; with less basal constriction to the thorax: the striae not punctate. I have failed to match them with any specimens found by Mr Perkins. A specimen sent me some years ago by Mr Blackburn as this species is apparently a damaged specimen of a *Mecyclothorax* differing very little from *M. vulcanus*.

Hab. Maui. Haleakala (Blackburn).

(7) *Thriscothorax subconstrictus*, sp. nov.

Niger, vel piceus, antennis, palpis pedibusque testaceis; elytris nigris, sutura versus apicem lateralique margine rufis; thorace haud lato, lateribus rotundatis, basi angusta, constricta, angulis posterioribus rectis; elytris quinque-striatis, striis subtiliter punctatis, apicem versus profundis. Long. $3\frac{1}{2}$—4 mm.

This little *Thriscothorax* somewhat resembles *Mecyclothorax micans*, but it is readily distinguished by the striae carried to the tips of the elytra; this also separates it from the *T. palustris* and *modestus*; in the latter species the striae are visible at the tip, but are not so deep as in *subconstrictus*, and they are not punctate.

The transverse anterior impression of the thorax is rather obsolete; the surface is shining but there are some very indistinct transverse wrinkles on the disc, and the median channel is indistinct, the base is punctate; the sides are rounded and much narrowed behind, sinuate so that there is a short basal constricted portion with rectangular angles. The striation of the elytra is fine, and the punctures, though quite distinct on the anterior parts, are also fine. Many examples.

HAB. Maui. Haleakala, 10,000 ft. (Perkins).

(8) *Thriscothorax molokaiae*, sp. nov.

Convexiusculus, nitidus, nigricans, antennarum basi, palpis pedibusque flavis, antennis extrorsum rufo-obscuris; prothorace lato, lateribus rotundatis, basin versus fortiter angustato, basi constricta, angusta, angulis posterioribus rectis; elytris convexiusculis, breviter ovalibus, subaenescentibus, apice testaceo, marginibus parum conspicue testaceis, profunde striatis, striis subpunctatis. Long. 3½ mm.

Head rather narrow. Thorax shining black, only slightly paler at the lateral margin, which is fine; the strongly rounded sides are much narrowed behind, so that the base is narrow; the base punctate, the median channel very distinct, the anterior impression less definite. The elytra rather short and convex, shining, with a feeble brassy reflection, deeply striate, the striae a little fainter at the extreme base, the outer two striae very fine, the others distinct at the apex, the punctuation fine: the tip yellow, and this colour extends a good way forwards along the suture and sides. Legs pale yellow. Four specimens.

HAB. Molokai, 4000 ft., 15 June, 1893 (Perkins).

(9) *Thriscothorax perstriatus*, sp. nov.

Angustus, convexiusculus, nitidus, nigricans, antennis rufis, basi, palpis pedibusque flavis; prothorace lato, lateribus rotundatis, basin versus angustato, basi constricta, angulis posterioribus rectis; elytris convexiusculis, subaenescentibus, apice testaceo, margine anguste testaceo, profunde striatis, striis a basi ad apicem ductis, plus minusve punctatis. Long. 4 mm.

Plate VII. fig. 8.

Though very like *T. molokaiae* this species is more elongate, and has the base of the thorax broader, the striation of the elytra is very deep, even at the basal margin each stria is deep and distinct, and all the eight striae are easily seen on each wing-case. There is but little punctuation at the base of the thorax.

In this species and in *T. molokaiae*, the under surface is to a large extent yellow, the ventral segments being entirely yellow in *T. perstriatus*. I have seen only a small series of each and though both appear to be variable I think them distinct. I am indeed more doubtful whether the specimens in each case may not be more than one, but the examples are too few in number to enable me to form any decided opinion.

HAB. Maui.

(10) *Thriscothorax mundanus*, sp. nov.

Latiusculus, parum convexus, nitidus, piceus, limbo, antennis, palpis pedibusque flavis; prothorace fortiter transverso, lateribus rotundatis, basi constricta, angulis posterioribus rectis; elytris brevibus, rotundatis, quinque-striatis, striis ad apicem evanescentibus, ad basin punctatis, externis obsoletis. Long. 4½ mm.

This species is very different from *T. filipes*, and is nearer to *T. unctus*. It is distinguishable from the former by the broadly oval elytra with extremely rounded shoulders, and by the punctate striae. The thorax is like that of *T. unctus*, short, strongly rounded at the sides so as to be much narrowed behind, with a very short straight-sided basal portion and sharply rectangular hind angles. The broad elytra are a little convex, with pale margins and suture; each has five striae and traces of a sixth; these striae are distinctly punctate at the tip and all, except the sutural one, become more indistinct behind; the second one is however quite definite at the tip, and the others can be traced there. The only two specimens found are rather immature, and the colour is probably less deep than in mature examples.

HAB. Lanai. On the summit, July 1894.

(11) *Thriscothorax constrictus*, sp. nov.

Robustus, haud latus, nigricans, supra subaenescens, elytrorum thoracisque marginibus, antennarum basi, palpis pedibusque testaceis; prothorace lato, lateribus rotundatis, basin versus abrupte angustatis, basi constricta, angulis posterioribus rectis; elytris octo-striatis, striis impunctatis, ad apicem sat discretis. Long. 5¼ mm.

Plate VII. fig. 9.

A very distinct species. The transverse thorax is abruptly narrowed behind, with a short basal constricted part, the sides of which are upturned; the surface is not polished, the disc is slightly wrinkled transversely, and along the anterior impression there are many fine longitudinal striae; the median channel is distinct but there is very little sculpture at the base. The elytra are elongate, the disc subaeneous, the sides broadly flavescent, the suture also yellow; the fine striae extend from the base to the apex and are not punctate. Two specimens.

HAB. Molokai. 4500 ft., June 1893 (Perkins).

(12) *Thriscothorax insolitus*, sp. nov.

Convexus, niger, politus, elytris ad apicem et ad latera late testaceis, antennis palpis pedibusque flavis; prothorace angusto, convexo, lateribus leniter rotundatis, angulis posterioribus brevissime rectis; elytris convexis, brevissime quadristriatis, striis punctatis. Long. 4½ mm.

Plate VII. fig. 10.

A very distinct species of which only one example has been found. In form like *Metrothorax*—e.g. *M. debilis* or *simiolus*—but the lateral thoracic seta is present, though excessively delicate. Thorax very shining, much narrower than the elytra, convex, very shining, lateral margin very fine, the median channel and anterior impression subobsolete, the former however deepening into a fovea behind the middle, the sides gently rounded, and the angles rectangular, though the sinuation that prevents them from being obtuse is excessively short. Elytra broad, short and convex, very shining, black, very broadly yellow behind, very finely striate, but with very definite punctures on the short striae, the sutural stria reaching to the tip as usual. Legs short. One specimen.

The glassy surface and the sculpture make this approach *T. variipes* and *ducalis*, but it differs entirely from them in other respects. The extremely minute thoracic seta and the *Metrothorax*-like form, together with the large area of yellow at the tip of the elytra, should make it easily recognisable.

Hab. Maui. Haleakala 3000 ft., in 1900 (Perkins).

(13) *Thriscothorax laetus*, Blackburn.

Cyclothorax laetus Blackburn, Ent. Mo. Mag. xvii. 1880, p. 228.

This species greatly resembles *Mecyclothorax rusticus*, but has a distinctly constricted base to the thorax, and only very fine elytral striae. I have suggested that it may possibly be a dimorphic form of *Mecyclothorax laetus*. The following are the particulars as to our small series of 19 specimens: Haleakala April 1894, Olinda woods 4000 ft. and downwards, two specimens; Haleakala, 4000 ft. May 1896, two specimens, No. 599; as preceding, but 5000 ft., one specimen, No. 600; as preceding, but No. 605, one specimen; as preceding, but No. 608, one specimen; as preceding, but No. 609, one specimen; as preceding, but No. 615, one specimen; as preceding, but 4000 ft. and No. 622, two specimens; as preceding, but No 623, one specimen; Haleakala 4500—5000 ft. October 1896, four specimens, No. 679; as preceding, but 4000 ft. and No. 680, three specimens; Haleakala, in 1902, seven specimens given to Mr Perkins by a friend.

These data render it probable that if *T. laetus* and *M. laetus* are dimorphic forms, yet they rarely, if ever, occur in company. For the data as to *M. laetus* see that species, p. 248.

Hab. Maui. Haleakala, about 4000 ft. on several occasions (Perkins, Nos. 599, 608, 609, 623, 679, 680).

(14) *Thriscothorax bembidioides*, Blackburn.

Cyclothorax bembidioides Blackburn, Ent. Mo. Mag. xvi. 1879, p. 107.

A remarkable little insect with highly polished, glassy surface. Thorax much narrowed behind, with very obtuse angles.

Elytra with only a sutural stria which is punctate at the base.

Mr Blackburn's specimens in the British Museum do not exhibit a seta; but they have been much damaged by dirt and mould, and I think are this species.

Hab. Hawaii. Mauna Loa, about 3000 ft., under a stone, one specimen (Blackburn). Kilauea, September 1896, three specimens (Perkins).

(15) *Thriscothorax paradoxus*, Blackburn.

Cyclothorax paradoxus Blackburn, Ent. Mo. Mag. xvi. 1879, p. 108.

Plate VII. fig. 11.

Distinguished by the red colour, the surface as if varnished, and the strongly transverse thorax much narrowed behind, but without the slightest sinuation, so that the hind angles are very obtuse, and the sides are only narrowly turned upwards at the base. The anterior transverse impression is very deep, and the median channel strongly marked. There are only two striae on each elytron. Mr Blackburn found but one specimen and Mr Perkins has just sent me another, which agrees with it except in being smaller. Mr Perkins has also sent a specimen of a *Mecyclothorax* from the same island, that is extremely like *T. paradoxus.*

Hab. Hawaii. Mauna Kea, 3000 ft., under bark of a tree (Blackburn).

(16) *Thriscothorax discedens*, sp. nov.

Niger, antennis rufo-obscuris, earum basi palpisque testaceis, pedibus fusco-testaceis; prothorace fortiter transverso, basin versus angustato, basi angusta; elytris striis punctatis profundis circiter tribus, externe tantum stria altera, munitis. Long. vix 4 mm.

Readily recognised by the deep striae next the suture, while outside these there are only one or very abbreviated striae, and by the short thorax, greatly narrowed behind with obtuse angles. The anterior transverse impression is rather indefinite, the median channel very distinct, the narrow base but little punctate. The short striae on the elytra do not commence at the base, with the exception of the sutural one which is deep from base to the tip, the fourth stria is very short, and there are traces of a fifth outside it. The legs are much infuscate, especially the tibiae and the bases of the femora. Four specimens.

Var. *terminalis*, var. n.

One specimen, from Olaa, is rather smaller, and has the elytra broadly yellow at the tip, the raised margins of elytra and of thorax are also yellow, as well as the legs, there are five striae all of which are strongly punctate. It is possibly a distinct species.

Hab. Hawaii. Kilauea (Perkins).

(17) *Thriscothorax chalcosus*, sp. nov.

Rufus, supra piceus, aeneo-micans, antennis, palpis pedibusque flavis; thorace transverso, lateribus rotundatis, posterius breviter constricto; elytris sat profunde striatis, striis obsolete punctatis. Long. 4½ mm.

Perhaps nearest to *T. laetus*, but of brassy colour above, and with much more deeply striate wing-cases. Differs from *T. laticollis* and its allies by the smaller thorax, with a much narrower base. Head moderately broad. Thorax much narrower than the elytra, much rounded at the sides, and with a short constricted basal portion; hind angles rectangular; the side margin strongly elevated, the anterior impression definite, the median channel deep, the base with some coarse punctures, and on each side deeply depressed. Elytra rather strongly rounded at the shoulders, shining, brassy, but the suture behind, the tip and even the lateral margin, paler red than the rest; each with eight striae, beginning quite at the base, where they are deep and are feebly punctate, at the tip only moderately deep, the outer two striae quite distinct though not so deep as the others. Legs clear yellow. One specimen only.

Hab. Maui. West Maui mountains (Perkins).

(18) *Thriscothorax apicalis*, sp. nov.

Niger, parum convexus, sat nitidus, antennis, palpis pedibusque flavis, elytrorum apice discrete sed haud late testaceo; prothorace transverso, lateribus leniter rotundatis, basi haud constricta sed angulis posterioribus minute rectis; elytris septem-striatis, striis ad apicem profundis, sed externis anterius obsoletis. Long. 4 mm.

Plate VII. fig. 12.

A rather short insect with the upper surface a little flattened; to be recognised by the well-marked but impunctate striae, and the form of the thorax, which, though gently rounded at the sides and somewhat narrowed behind, so that the base though rather broad is narrower than the front, yet has not any distinct constricted portion, the hind angles being nevertheless exactly rectangular, though if a very minute section be taken off the base the angles would be obtuse: the lateral margin is very fine and only at the base is it minutely thicker; the base is straight, rather broad, distinctly punctate and slightly strigose, the anterior impression and the median channel are quite definite, indeed rather deep. The elytra are but little rounded at the shoulders, with the striae fine, though distinct at the apex, not punctate; the legs are rather short.

We have a small series of this species, 25 specimens. It does not vary much and a good deal resembles *Mecyclothorax rusticus* and *micans*.

Hab. Maui. Haleakala, 10,000 ft., April 1894 (Perkins).

(19) *Thriscothorax perkinsi*, sp. nov.

Fuscus, supra vix subaeneus, abdomine et pectore nigricantibus, antennarum basi palpis pedibusque fusco-testaceis, femoribus extrorsum flavis; elytris profunde abnormaliter sculpturatis, profundissime striatis, interstitiis subsymmetrice fractis. Long. $4\frac{1}{2}$ mm.

Plate VII. fig. 13.

Antennae dark, with the basal joint yellow, and the following two more or less yellow. Thorax strongly transverse, sides greatly rounded, much narrowed behind, the base constricted, the hind angles rectangular, the disc shining, slightly wrinkled transversely, the median channel and anterior impression very deep, the base punctate, deeply impressed on each side. Elytra with very peculiar sculpture, the striae or grooves very deep, the sutural two interstices angular, those more external broken here and there, and where broken rendered irregular, so that some of the fragments connect with their lateral neighbours; near the base on each side a peculiar loop is thus formed.

I have much pleasure in naming this remarkable little insect after its discoverer. It is, I suppose, next to impossible to attempt any explanation of these remarkable freaks of sculpture. This sculpture varies a little. We have a small series of eight individuals.

Hab. Molokai, 5000 ft., in the autumn of 1893 (Perkins).

(20) *Thriscothorax variipes*, sp. nov.

Niger, politus, antennis, palpis pedibusque testaceis, femorum basi tibiarumque medio fuscis; prothorace basin versus angustato, lateribus haud sinuatis, angulis posterioribus obtusis; elytris seriebus quatuor punctorum valde abbreviatis, stria suturali ad apicem profunde exarata. Long. 6 mm.

A large *Thriscothorax* with highly polished surface, and very obtuse hind angles to the thorax. Antennae not elongate. Head usually piceous. Thorax very polished, much narrowed behind, but without any sinuation at the sides, the hind angles obtuse, not rounded, the base narrow; the anterior impression deep and definite, not sculptured, the median channel distinct, the base punctate. Elytra polished, with four series of punctures that commence some little distance behind the base, the sutural one is continued as a stria to the apex where it is deep, the second can be just detected near the apex, but the others cannot be detected there. Legs with yellow coxae, the femora broadly black at the base, and the tibiae blackish in the middle. Six specimens.

Hab. Hawaii. Kilauea, August 1896 (Perkins).

(21) *Thriscothorax ducalis*, sp. nov.

Robustus, nigerrimus, politus, antennis palpis pedibusque fusco-testaceis, his variegatis; thorace basin versus angustato, lateribus sinuatis, basi constricta, angulis posterioribus rectis; elytris seriebus quinque punctorum valde abbreviatis, stria suturali ad apicem profunda. Long. 6½ mm.

Plate VII. fig. 14.

Resembles *T. variipes* in sculpture, but is readily distinguished by the shape of the thorax with rectangular hind angles. Antennae dark except the basal joint. Thorax with the anterior impression indefinite, the median channel distinct. The series of punctures on the elytra very much as in *T. variipes*, but with five or six punctures outside the fourth stria, representing the fifth stria near the base. Legs largely infuscate, femora yellow just before the tips, the knee itself being dark. Five specimens.

Hab. Maui. Haleakala, about 5000 ft., single specimens on several occasions (Perkins).

(22) *Thriscothorax karschi*, Blackburn.

Cyclothorax karschi Blackburn, Ent. Mo. Mag. XIX. 1882, p. 62.

Distinguished amongst its allies by the deep striae and their comparatively large punctures. There are five of these striae on each elytron, but only the sutural one extends to the tip. The thorax is not greatly narrowed behind, and is only minutely sinuate in outline before the hind angle; the latter is obtuse, and the thick lateral margin is strongly elevated there: the fovea on each side is deep.

One of the rarest of the Hawaiian Carabidae, only three individuals being known.

Hab. Hawaii. Mauna Loa, amongst loose stones, 6000 ft. (Blackburn); Kona, Mauna Loa, 4000 ft., in July and December (Perkins).

(23) *Thriscothorax obscuricolor*, Blackburn.

Cyclothorax obscuricolor Blackburn, Ent. Mo. Mag. XV. 1878, p. 123.

A rather small form, with the full complement of striae on the elytra; though rather deep they are not punctate. The general colour is dull black, with the margins of the thorax and elytra more or less red, the basal part of antennae and the legs yellow, the base of the femora blackened. I have seen only a small series and it appears to be very variable: the striae are more or less deep, and when very deep are indistinctly punctate, the colour also varies somewhat, as does the length of the thorax; this part is however always transverse, and a good deal narrowed behind, with rather narrow base; but there is no constricted part, and the angles are obtuse, although a minute sinuation of the sides in front of them is more or less distinctly present. The form of the thorax distinguishes the species from *T. modestus*, to which it has a considerable general resemblance. Twelve examples.

The single specimen from Lahaina has no definite characters to distinguish it.

Hab. Maui. Haleakala, 4000 ft. (Blackburn and Perkins). Lahaina (Koebele).

(24) *Thriscothorax brevis*, Blackburn.

Cyclothorax brevis Blackburn, Ent. Mo. Mag. xv. 1878, p. 123.

Not very likely to be confounded with any other species though it has no very salient character. Size medium, colour above dark bronzy, after-body short and convex, moderately deeply striate; hind angles of thorax obtuse. Eighteen specimens.

HAB. Oahu. Not very rare; among decaying leaves at an elevation of about 2000 ft. (Blackburn). Mountains Honolulu, December 1900 (Perkins).

(25) *Thriscothorax laticollis*, sp. nov.

Fuscus, antennarum basi, palpis pedibusque testaceis, femorum basi nigricante; prothorace lato, valde transverso, opaco; elytris abnormaliter sculpturatis, profunde striatis, interstitiis hic inde subsymmetrice fractis, fragmentis disordinatis. Long. $4\frac{3}{4}$ mm.

By the extraordinary sculpture of the elytra allied to *T. perkinsi*, but with a very different thorax: this is but little narrower than the elytra, gently rounded at the sides, and slightly narrowed behind, but without a constriction; the hind angles are very sharply marked and slightly obtuse: the surface is flat and dull, feebly wrinkled, of a dull reddish colour at the sides, darker on the middle, the median channel is present, the anterior impression is rendered somewhat indistinct by the numerous minute longitudinal strigosities that are connected with it. The grooves on the elytra are deep, and the convex interstices are here and there broken; on each side, about the fifth, sixth and seventh striae, there is an elongate patch of irregular fragments of the disintegrated interstices. One specimen.

In the form of the thorax this insect is allied to *Mecyclothorax multipunctatus*; and at each hind angle of the thorax there is an excessively minute erosion of the surface at the spot where the seta is situate in the species of *Mecyclothorax* referred to.

HAB. Molokai, 3500 ft., 5 June, 1893 (Perkins).

(26) *Thriscothorax bradyderus*, sp. nov.

Brevis, latus, robustus, niger, supra aeneus, antennis palpis pedibusque testaceis, illis extrorsum, his tibiis tarsisque sordidis; thorace valde transverso, lateribus posterioribus leniter breviter sinuatis, angulis posterioribus fere rectis; elytris sat profunde striatis, striis impunctatis. Long. vix 5 mm.

Remarkable by its short, broad form; head short and broad. Thorax very broad, dull, brassy, the lateral margin yellowish, the anterior impression rather deep, strongly crenate, the central channel deep, the base much punctate. Elytra broad, shoulders but little incurved: deeply striate, but the striae not punctured. Two specimens.

HAB. Molokai. On the boggy plateau below the densest forest, about 4000 ft., June 1896 (Perkins).

(27) *Thriscothorax robustus*, Blackburn.

Cyclothorax robustus Blackburn, Ent. Mo. Mag. XVII. 1881, p. 228.

This species is so closely similar to *Mecyclothorax robustus* as to suggest that the two may be dimorphic forms of one species. We have only a small series of sixteen examples; the locality numbers are 372, 599, 605, 620, 622, 679, 680, or almost the same as for *M. robustus*. Mr Blackburn's type was the only example he found; it is very large, and feebly striate in comparison with the examples procured by Mr Perkins, but as it may be the same species I adopt his name.

HAB. Maui. Haleakala on several occasions at an elevation of 4000 or 5000 ft. (Perkins). Blackburn found only one example; it has a similar record.

(28) *Thriscothorax platysminus*, sp. nov.

Robustus, piceus, antennis, palpis pedibusque testaceis; prothorace lateribus subcurvatis, posterius leniter angustato, angulis posterioribus obtuse rectis; elytris oblongis, sat crasse marginatis, subtiliter striatis. Long. 5½ mm.

Plate VII. fig. 15.

Antennae rather slender, entirely yellow. Thorax transverse, sides but little rounded, narrowed a little behind the middle, with an almost imperceptible sinuation before the hind angle, but enough to prevent this from being markedly obtuse; median channel distinct, anterior impression strigose, the base strigose, with but few punctures. Elytra more oblong than usual, but little rounded at the shoulders; with the full complement of striae, but these fine, minutely punctate, extending from base to tip, but the outer one or two very obsolete. Legs slender. Two specimens.

Readily distinguished from *T. robustus*, by the scarcely at all metallic surface, less convex form, and much finer striation of the elytra.

HAB. Molokai. About 4000 ft., probably on the side of a stream at the bottom of the gulch, June 1896 (Perkins).

(29) *Thriscothorax argutor*, sp. nov.

Angustus, subparallelus, rufus, politus, antennis, palpis pedibusque flavis; prothorace subquadrato, basin versus leniter angustato et sinuato, angulis posterioribus rectis; elytris suboblongis, sat profunde punctato-striatis. Long. 5 mm.

Antennae long, head rather narrow. Thorax not much narrower than the elytra, broader than long in the proportion of about five to four, the sides slightly rounded, distinctly narrowed and sinuate behind, the hind angles rectangular; the anterior impression distinct, but with many strigosities about it, the median channel distinct and carried to the base, the lateral margin fine in front, but more elevated behind, and at the hind angles strongly elevated, the base but little punctate. Elytra rather long and narrow, parallel-sided, the striae definite, impressed and entire, extending from base to tip, but here not deeply impressed, the external one or two obsolete; the suture and external margin paler. Legs quite pale.

We have only one female of this distinct species; of all this Hawaiian group it is the one that looks most like an ordinary Pterostichid, and is therefore of considerable interest. It occurs with some of the Anchomenids that are most differentiated, *Atrachycnemis* and *Deropristus*.

Hab. Molokai. In June 1896 at an elevation of about 4000 ft. (Perkins).

Atelothorax, gen. nov.

Corpus apterum. Prothorax utrinque seta unica ad angulum posteriorem sita.

This genus, the analogue of *Atelothrus* in Anchomenides, is represented only by a single species of which only one specimen is known. It is the most recent discovery in Hawaiian Coleoptera, having been captured by a friend of Mr Perkins, who made the ascent of Haleakala in 1901 or 1902. He collected 16 species of the *Cyclothorax* group, of which two have proved to be new. If it should prove that the absence of the seta is not a constant character, the species would take its place in *Mecyclothorax* next to *M. cognatus*, to which it is very similar.

(1) *Atelothorax optatus*, sp. nov.

Convexus, piceus, supra aeneus, nitidus, antennis rufis, palpis pedibusque flavis; thorace transverso, angulis posterioribus rectis; elytris sat profunde striatis, striis impunctatis. Long. 5 mm.

Extremely similar to *Mecyclothorax cognatus*, but with the sides of the thorax less sinuate behind. Both thorax and elytra have the raised lateral margin red. The thorax is strongly transverse, the anterior impression and median channel distinct. The elytra have the full complement of striae which run from base to apex.

The unique exponent was found on Haleakala last year by a friend of Mr Perkins. I regret that I do not know his name.

Hab. Maui. Haleakala.

Metrothorax, gen. nov.

Prothorax setis erectis carens. Alae vestigiales.

In this genus I have placed the more elongate and larger forms first.

(1) *Metrothorax molops*, sp. nov.

Elongatus, robustus, nitidus, niger, antennis pedibusque flavis; prothorace convexo, vix transverso, lateribus valde rotundatis, postice brevissime coarctato, angulis posterioribus subobtusis, margine laterali subtilissimo; elytris fere unistriatis, stria secunda valde abbreviata. Long. 7½ mm.

Plate VII. fig. 16.

Head broad, eyes convex, very large. Thorax finely, but not obsoletely canaliculate on the middle, almost impunctate, anterior transverse impression very deep. Elytra elongate and convex, shining, impunctate, with a single well-marked stria near the suture; the lateral margin unusually fine.

This remarkable species cannot be confounded with any other. The general shape, the subglobular thorax, with the fine margins of thorax and elytra, are distinctive. *M. macrops* is the only species at all near it. Only two examples have been found, one of which is very immature.

HAB. Maui. Haleakala, 5000 ft., in March 1894 and May 1896 (Perkins).

(2) *Metrothorax macrops*, sp. nov.

Elongatus, angustus, piceus, antennis pedibusque flavis, elytrorum apice testaceo; thorace elongato, cordato, angulis posterioribus rectis, subtilius canaliculato; elytris unistriatis vel bistriatis, striis externis obsoletis. Long. 6 mm.

Smaller than *M. molops*, with a distinctly constricted base to the thorax, so that the angles are quite rectangular. The shape is transversely a little less convex than it is in *M. molops*, but is more convex than in the following species. Eleven examples.

HAB. Maui. Haleakala, on several occasions; 4000—6000 ft.; once at Olinda under bark of Koa, April 1894 (Perkins).

(3) *Metrothorax deverilli*, Blackburn.

Cyclothorax deverilli Blackburn, Ent. Mo. Mag. XVI. 1879, p. 108.

In this species the elytra have a greenish tint and are very shining: the thorax is much narrowed behind with a distinct constricted part which is punctate, the angles rectangular. The striation varies but is always very slight, even the sutural stria being faint except at the apex, and there it is not very deep; the antennae beyond the fourth joint are infuscate-red, and the tibiae are sometimes slightly infuscate. There is always some extent of yellow colour at the tip of the elytra.

I have seen ten examples. They vary a little in the width of the thorax, and slightly in the striation of the elytra, which in one or two is evident though very faint.

HAB. Hawaii; various localities, generally under bark of trees at an elevation of about 3000 ft. (Blackburn); Hilo, Kilauea, on several occasions, always singly (Perkins).

(4) *Metrothorax perkinsianus*, sp. nov.

Niger, elytris viridescentibus, perpolitis, antennis pedibusque rufo-testaceis, illis extrorsum fuscescentibus; elytrorum apice suturaque posterius conspicue testaceis;

thorace elongato, basin versus minus abrupte constricto, angulis rectis, medio canaliculato, basi mediocriter punctata, impressione transversa anteriore parum profunda haud sculpturata; elytris obsolete striatis, stria suturali ad basin et versus apicem sat profunda. Long. 5 mm.

Closely allied to *M. deverilli*, but with the constricted basal portion of the thorax more definite and the hind angles therefore sharper. Almost equally near to *M. haleakalae* but smaller, with the thorax less abruptly constricted at the base, and with a broad, definitely yellow apex to the elytra; the highly polished surface of the elytra is remarkable. Five specimens.

This species was discovered by the naturalist to whom we are indebted for *Atelothorax optatus*.

HAB. Maui. Haleakala.

(5) *Metrothorax haleakalae*, sp. nov.

Elongatus, parum convexus, niger, elytris subviridescentibus, antennis pedibusque rufis, illis extrorsum, tibiis tarsisque plus minusve fuscescentibus; prothorace majore, vix transverso, basi constricta et punctata, angulis posterioribus rectis, fere acutis; elytris tenuissime striatis, stria suturali tantum ad apicem sat profunde impressa. Long. $5\frac{1}{2}$—6 mm.

Closely allied to *M. deverilli*, rather larger, with a larger thorax which is more abruptly constricted behind, with the angles sharper. The elytra are not at all pale at the tip and the suture is not, or only faintly red behind. The antennae and legs are rather longer. Eleven examples.

HAB. Maui. Haleakala, 5000 ft., on several occasions (Perkins).

(6) *Metrothorax laticollis*, sp. nov.

Niger, politus, elytris viridescentibus, antennis (articulo basali excepto) palpisque fuscis, pedibus antennarumque basi testaceis; prothorace lato, posterius abrupte angustato, angulis acute rectis, canaliculato; elytris fere estriatis, stria suturali subtili. Long. 5 mm.

I have seen only five examples of this species. Though extremely near to *M. perkinsianus* I think it may prove distinct on account of the broader thorax which is very abruptly narrowed behind, and is less punctate at the base. The colour is more that of *M. haleakalae*, and so is the form of the thorax. The elytra also are comparatively shorter in proportion to their width.

HAB. Maui. Hawaii? Haleakala 4000—6000 ft. No. 680 (Perkins). I am not convinced that the exponent, supposed to be from Hawaii, was really found there. It is No. 686, = Kilauea VIII. '95. A confusion between 680 and 686 is very easy.

(7) *Metrothorax blackburni*, sp. nov.

Angustulus, convexus, nitidus, niger, antennis extrorsum fuscescentibus, basi palpis pedibusque flavis; prothorace elongato, profunde canaliculato, basi constricta punctataque, angulis posterioribus acute rectis; elytris 5- vel 6-striatis, striis punctatis sed brevibus. Long. 5 mm.

This species is—like however to other allied forms—very Bembidioid in appearance. It is not likely to be confounded with other species of this genus, but more resembles certain species of *Thriscothorax*; e.g. *T. karschi*; it has however a narrower thorax with the constricted basal portion more elongate. The head is rather narrow; the antennae have the first three joints and the base of the fourth yellow, the others rather darker. The thorax is but little broader than long, the sides gently rounded in front; sinuate behind, and meeting the base so as to form a sharply-marked right angle. The median channel and the basal punctuation are very distinct, the lateral margin, as well as that of the elytra, quite fine. The elytra transversely convex, rather narrow, shining black, only narrowly yellow at the tip; towards the base with well-marked series of punctures—about five in number: these are continued backwards as fine striae, but only the sutural one is definite at the tip. Legs clear yellow. I have named this distinct in species after the Rev. T. Blackburn, who was almost the first to call attention to the interesting nature of the Hawaiian Insect-fauna. The six examples found show little or no variation.

Hab. Molokai. On the mountains, in June, in 1893 and 1896 (Perkins).

(8) *Metrothorax scaritoides*, Blackburn.

Cyclothorax scaritoides Blackburn, Ent. Mo. Mag. xv. 1878, p. 156: Blackburn and Sharp, Tr. Dublin Soc. (2) III. pl. IV. f. 6.

We have received a very large series of this species. It has a broad thorax, which is moderately long, and has a very short basal constriction, just sufficient to make the angles rectangular; the length of the insect is about 5 mm. and that of the thorax $1\frac{1}{3}$ mm.[1]; the legs and antennae are yellow, the elytra convex, and with but feeble and not extensive striation. The striation is rather variable, and some examples (as stated by Mr Blackburn) have several short striae visible and in some cases these are series of punctures. The species has been found on the two adjacent islands of Maui and Molokai, and there is no difference between the specimens from the two islands. One highly aberrant example from Molokai has the elytral sculpture almost as well developed as it is in *M. blackburni*, but has none of the other characters of that species.

Hab. Maui. Haleakala (Blackburn), 4000—5000 ft., on several occasions (Perkins).

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[1] Mr Blackburn gives the length as 6—$6\frac{1}{2}$ mm., but he seems to have exaggerated the length of most of the species of this division. It is probably however rather greater in quite fresh than it is in dried specimens.

(9) *Metrothorax rotundicollis*, sp. nov.

Convexus, nitidus, niger, antennis pedibusque flavis; prothorace fortiter transverso, lateribus aequaliter rotundatis, angulis posterioribus perobtusis fere nullis; elytris bistriatis, striis magis externis parum discretis. Long. 5 mm.

Plate VII. fig. 17.

Extremely similar to *M. scaritoides*, but distinguished from it and all the other species by the extremely obtuse hind angles of the thorax; this part is nearly 1¼ mm. long, and about 1¾ mm. broad, and is not greatly narrower than the elytra; the lateral margin is very fine, and is scarcely at all prominent at the hind angle; the median channel is also very fine, and there is very little sculpture at the base. The legs are very short. Seven specimens.

HAB. Molokai. Mountains, 3000 ft., May 1893 (Perkins).

(10) *Metrothorax curtipes.*

Brevior, niger, politus, antennis palpis pedibusque flavis; prothorace fortiter transverso, angulis posterioribus obtusis, haud rotundatis, subtilissime canaliculato, basi parum punctata; elytris latiusculis, convexis, stria suturali profunda, stria secunda sat discreta, preterea parum striatis. Long. 4—4¾ mm.

Of this species we have received also a large series of about 150 examples; though closely allied to *M. scaritoides* there is no doubt that it is perfectly distinct, besides being smaller, the hind angles of the thorax are less acute, and the legs considerably shorter. The penultimate joint of the maxillary palpus is considerably shorter. The male genitalia also exhibit well-marked distinctions. The striation of the elytra varies a little as it does in *M. scaritoides*. The thorax is extremely finely margined, and the elytral margin is also fine.

HAB. Molokai. Mountains, 3000—4000 ft., on several occasions (Perkins).

(11) *Metrothorax extimus*, sp. nov.

Nigro-piceus, supra niger, politus, antennis, palpis pedibusque rufis, tibiis antennisque ex parte fuscescentibus; prothorace fortiter transverso, basin versus angustato, angulis posterioribus perobtusis; elytris striis quinque punctatis, externis valde abbreviatis. Long. 4½ mm.

Nearest to *M. curtipes* but very distinct; rather narrower, with a narrower base to the thorax, and in colour and sculpture more like *Mecyclothorax pele.* Above coal-black, polished, the suture behind rufescent, the raised external margins feebly picescent. The antennae red, at the base, darker outwardly. Thorax strongly transverse and much narrowed behind; the anterior impression and the median channel distinct. Elytra with a sutural stria extending from base to apex, and with four other very abbreviated striae of punctures. Legs short, red, tibiae and bases of the femora infuscate. One specimen.

HAB. Hawaii. Kona, 3000 ft., August, 1894 (Perkins).

(12) *Metrothorax simiolus*, Blackburn.

Cyclothorax simiolus Blackburn, Ent. Mo. Mag. xv. 1878, p. 123.

Brevior, niger vel piceus, nitidus, antennis pedibusque flavis; prothorace cordato, parum transverso, ad basin constricto, angulis posterioribus rectis; elytris latis, convexiusculis, stria suturali profunda, punctata, striisque aliis duabus valde abbreviatis. Long. 4 mm.

Closely allied to *M. curtipes*, but with shorter and more convex elytra, with the thorax constricted, and the hind angles very distinct and definite. The head is narrower and the eyes less prominent. The elytra are but little longer than broad, $2\frac{2}{5}$ mm. long by 2 broad, and are nearly twice as broad as the thorax. The sutural stria is deep and definite throughout, all its anterior part is deeply and definitely punctured, outside it there is another stria of punctures much abbreviate, and external to this an exceedingly abbreviate one; none of the striae, except the sutural one, is in the least visible at the tip; the suture is reddish, and the raised lateral margin very distinctly yellowish.

I think the identification of Mr Koebele's insect with Blackburn's type is correct.

Hab. Oahu. One specimen (Koebele). Mountains of Oahu, rare (Blackburn).

(13) *Metrothorax oahuensis*, Blackburn.

Cyclothorax oahuensis Blackburn, Ent. Mo. Mag. xv. 1878, p. 123.

I have seen only the two specimens of Mr Blackburn, in the British Museum. They seem to be a small *Metrothorax*, with yellow margin to elytra and thorax, so that the former are almost plagiate; the striation of the elytra is less reduced than it is in *M. simiolus*.

Hab. Oahu. In the mountains, very rare (Blackburn).

(14) *Metrothorax crassus*, sp. nov.

Robustus, haud latus, politus, niger, antennis palpis pedibusque flavis; prothorace transverso, basin versus angustato, angulis posterioribus obtusis; elytris stria suturali profunda, preterea parum striatis. Long. 5 mm.

Thorax very shining, much narrowed behind, but not at all sinuate, hind angles well-marked but obtuse; not greatly narrower than the elytra, so that the base is broad; lateral margin very fine, the median channel fine but definite, the base feebly punctate. The elytra are elongate, the suture pale, the apex flavescent, the lateral margin quite fine.

We have received only one specimen of this species, which is nearly equally allied to *M. laticollis*, *curtipes* and *scaritoides*. Its form is like that of *M. laticollis*, but the thorax is different, being more narrowed behind and that in a straighter (less curved) line, the hind angle is much better marked. It is larger than *M. curtipes*, and has a more elongate after-body. In the shape of the thorax and the polished elytra it is different from *M. scaritoides*.

HAB. Maui. Jao Valley, W. Maui; March 1894 (Perkins).

(15) *Metrothorax debilis*, sp. nov.

Brevior, piceus, politus, antennis palpis pedibusque flavis, elytris nigricantibus, marginibus et apice rufo-testaceis; prothorace transverso, basin versus fortiter angustato, angulis posterioribus parum obtusis fere rectis, basi fere impunctata; elytris brevibus, stria suturali sat profunda, striis externis obsoletis. Long. vix 4 mm.

Closely allied to *M. curtipes*, rather smaller than the smallest individuals of that species, with the thorax less strongly transverse, and the elytra in proportion shorter; the hind angles of the thorax are better marked, the base is narrower, and the anterior parts of the insect are more dilute in colour. Four specimens.

HAB. Molokai. Kalawao, 4000 ft., August 1893 (Perkins).

(16) *Metrothorax discedens*, sp. nov.

Subdepressus, sat nitidus, niger, antennarum basi, palpis pedibusque testaceis; thoracis et elytrorum marginibus elevatis flavescentibus; thorace transverso, angulis posterioribus obtusis; elytris subtiliter striatis, striis externe et ad apicem evanescentibus. Long. 3½ mm.

This is quite different from its congeners, and by its appearance recalls *M. micans* and allies. The antennae are short. Thorax strongly transverse, a good deal narrowed behind, hind angles very obtuse, anterior impression absent, median channel distinct, basal punctuation slight. Elytra rather broad and flat, with four or five striae, not distinctly punctured, and much abbreviated: the suture behind as well as the external margin rufescent.

Though we have received only one example, there can be no doubt this is a quite distinct form.

HAB. Maui. Mount Lahaina, 3000 ft., January 1897 (Perkins).

Group *BEMBIDIIDES*.

We have obtained a comparatively small number of species of this group, but they are of great interest, and being small forms it is probable that careful research would reveal several others. Kauai is clearly the metropolis of the Hawaiian Bembidiides, and its high plateau and ridges will require to be very carefully worked before we can consider that the island has revealed to us all its small forms.

I have previously remarked that St Helena possessed a parallel Bembidiid Fauna to that discovered by Mr Perkins on Kauai. It was nearly all brought to light by Wollaston, who found it concealed in the decaying wood and stems of the precinctive vegetation. The St Helena species exhibit a remarkable variety of forms. Some of our species show a condition parallel with the St Helena forms, in sculpture, in form, and in the reduction of the eyes and atrophy of the wings. Some of Wollaston's species of *Endosomatium* would not look out of place intercalated in the Hawaiian series. If the two faunas can be more completely ransacked for Bembidiids I shall not be surprised if this parallelism is found to be more extensive. Some of the St Helena Bembidiids are very different from the Hawaiian forms and it is clear that the two faunas have had totally different origins.

The Hawaiian genera are easily distinguished.

- Trophi elongate (Plate VII. fig. 24),
  - Wings vestigial .... *Gnatholymnaeum.*
  - Wings ample .... *Nesolymnaeum.*
- Trophi normal in length,
  - Thorax with two pairs of setae,
    - Wings fully developed .... *Bembidium.*
    - Wings atrophied,
      - Eyes well developed .... *Nesocidium.*
      - Eyes reduced or absent .... *Nesomicrops* and *Macranillus.*
  - Thorax with one pair of setae or none,
    - With one pair placed at the hind angles .... *Atelidium.*
    - With no setae .... *Metrocidium.*

Tachys is not included in this table. The species have a deficient complement of striae, one of which is peculiarly recurved behind; and the front tibiae are not straight externally.

GNATHOLYMNAEUM, gen. nov.

Trophi elongati; mandibulae et maxillae pertenues. Maxillarum lobus externus valde elongatus, integer, ad basin vix divisus. Oculi parvi. Elytra sulcata. Corpus apterum.

This very abnormal form of Bembidiid is remarkable for the sharp and slender long mandibles (Plate VII. fig. 25) which have very little power of movement. The division of the external lobe of the maxilla is rather incomplete, and is indicated only by a very oblique suture near the base. The insect has the facies of *Trechus* quite as much as it has of *Bembidium*, but it is completely connected with the latter genus by means of *Nesolymnaeum*, which looks quite like a flat *Bembidium*. The genus should be placed at the beginning of the Bembidiides, near *Lymnaeum*.

(1) *Gnatholymnaeum blackburni*, sp. nov.

Rufo-piceus, elytrorum plaga posteriore palpis pedibusque testaceis, antennis rufo-obscuris, basi dilutiore; elytris sulcatis. Long. 4½ mm.

Plate VII. figs. 18 & 25.

Antennae rather long and slender. Head with two large but not definitely limited, longitudinal and parallel impressions; eyes small but borne on prominences of the genae. Thorax strongly transverse, a little rounded at the sides, minutely sinuate at the hind angles so as to prevent these from being obtuse; median channel prolonged to the base; on each side at the base a large and deep depression limited externally in front by a slight plica. Elytra parallel-sided, with a patch of paler colour (variable in extent) at or close to the tip; each with seven grooves (in addition to the one contiguous with the lateral margin), the interstices rather narrow at their summits, the third with two minute impressions. Legs rather long. Five specimens.

I have much pleasure in naming this interesting form after my friend the Rev. T. Blackburn, now of Adelaide, but formerly of Honolulu; it was owing to his exertions that attention was first directed to Hawaiian entomology.

HAB. Kauai (Perkins).

NESOLYMNAEUM, gen. nov.

Mandibulae et maxillae elongatae, subrectae. Maxillae lobo externo prope basin diviso. Oculi mediocres. Elytra regulariter punctato-striata, striis octo fere integris. Corpus alatum.

This insect has the facies of a *Bembidium* but it is nearer to *Lymnaeum*. The impressions on the front of the head are rather more like grooves than they are in *Lymnaeum*, but not so groove-like as they are in *Bembidium*. The slender trophi are much like those of *Gnatholymnaeum*, and the lobe of the maxilla is conspicuously transversely divided near the base; the elongation and straightening of the inner lobes, and their denticulation, are not quite so perfect as in *Gnatholymnaeum*, and the tips of the mandibles are rather less dagger-like. The basal joint of the front tarsus of the male is much enlarged, and both it and the second joint have the interno-distal angle so much prolonged as to be spinose. The thoracic setae are normal, viz. two on each side. The wings appear to be fully developed.

(1) *Nesolymnaeum spurcum*, Blackburn.

Bembidium spurcum Blackburn, Ent. Mo. Mag. XVII. 1881, p. 228.

The longer trophi distinguish this from all the other forms of Bembidiides except *Gnatholymnaeum*, and from that the black colour and delicately striate elytra separate it at once.

I have seen only two specimens of this species, besides Mr Blackburn's type.

HAB. Oahu, Molokai, Maui. Molokai, June 1892 (Perkins). Oahu, Waialua mountains 1902 (Koebele). Haleakala, 4000 ft. (Blackburn).

BEMBIDIUM Latreille.

This is an enormous genus, and as regards exotic forms is but little known. Its European members have however been extensively studied and distributed in numerous subgenera. Mr Blackburn placed two of the Hawaiian species in the European subgenera *Notaphus* and *Lopha*. But I cannot follow him in this course. One of our species, *B. teres*, comes sufficiently near to the subgenus *Synechostictus* to warrant its location there. A second species, *B. pacificum*, comes near to *B. normannum* of the subgenus *Emphanes*, and I associate it therewith and accompany it with a second species that appears to me to be closely allied. *B. ignicola* Blackburn, is perhaps allied.

Though I place *Bembidium advena* here, it has but little relation to any of the others. Only one specimen of it has been found, and I expect that when it can be investigated it will be found to form another peculiar, possibly flightless genus, allied to *Nesocidium*. This insect has not the peculiarity of the head I refer to in connection with *B. pacificum*, and at present may be treated as more allied to *B.* (*Synechostictus*) *teres*.

(1) *Bembidium* (*Synechostictus*) *teres*, Blackburn.

Bembidium (*Lopha*) *teres* Blackburn, Ent. Mo. Mag. XVII. 1881, p. 229.

This species has remarkably flat elytra; this, in conjunction with the normally short trophi, the striate elytra, and the thorax strongly narrowed behind, will lead to its identification. The length is about 5 mm.

HAB. Kauai, Oahu, Molokai, Maui; apparently scarce (Blackburn, Perkins).

(2) *Bembidium* (*Synechostictus?*) *advena*, sp. nov.

Subdepressum, fusco-aeneum, antennis nigris, basi, palpis, pedibus elytrisque flavis, his nigro-pictis. Long. 3½ mm.

Plate VII. fig. 19.

Antennae dark, with the first two joints and base of the third yellow. Head very short, eyes moderate, frontal grooves quite parallel, intra-orbital setae approximate, the surface dull metallic. Thorax transverse, greatly narrowed behind, so that the base is narrow, the surface golden, with a peculiar very fine sculpture, a sort of chasing, making it dull, except in the middle where it is a little shining. The median channel distinct. Elytra not elongate, rather parallel-sided, the shoulders obliquely rounded, the disc very distinctly quadrifoveolate; each with seven well-marked striae, continued to near the tip, with faint indications of punctuation, the very fine lateral margin is black, and there is an angular patch of dark purple-black colour at each side, and a transverse, black, common one before the apex. Legs pale yellow. Male with two basal joints of front tarsi dilated, and spinose at the interno-anterior angle. One specimen.

HAB. Maui. Haleakala, 5000 ft., April 1894 (Perkins).

(3) *Bembidium* (*Emphanes*) *pacificum*, Blackburn.

Bembidium (*Lopha*) *pacificum* Blackburn, Ent. Mo. Mag. xv. 1878, p. 157.

This species is of a brassy colour above, with yellow marks on the elytra. It is readily distinguished from *Synechostictus* by the deep clypeal suture which causes the front part of the upper surface of the head to look much more uneven. I have seen only half a dozen examples.

It would not be difficult to imagine this species to be the progenitor of *B. molokaiense*, and the allied forms of *Nesocidium*.

HAB. Kauai, Oahu. "Oahu, not rare, but very local, though found in several localities; it generally occurs running on damp ground" (Blackburn). Kauai, Mountains. Waimea, 4000 ft., May 1894 (Perkins).

(4) *Bembidium* (*Emphanes*) *ignicola*, Blackburn.

Bembidium ignicola Blackburn, Ent. Mo. Mag. XVI. 1879, p. 109.

I have seen only the specimen in the British Museum, Mr Blackburn's type. It apparently comes somewhat near both *B. pacificum* and *B. molokaiense*. It is smaller and darker than *B. pacificum* and very deeply sculptured.

HAB. Hawaii. One specimen, Kilauea; "I almost burned my fingers in securing it" (Blackburn).

(5) *Bembidium* (*Emphanes*) *molokaiense*, sp. nov.

Nigrum, supra plus minusve viridi-micans, antennarum basi pedibusque rufo-testaceis, antennis extrorsum fuscescentibus; prothorace transverso; elytris versus basin subplanatis, ibidemque late bi-impressis; fortiter seriatim punctatis, dimidio apicali impunctato, perpolito. Long. $2\frac{3}{4}$—3 mm.

Plate VII. fig. 23, wing.

Variable. Like *Nesocidium laeticulum*, but possessing perfectly developed wings; in addition to this none of the examples from Molokai agree with that species, which is a native of Kauai. The shape is slightly narrower and more elongate, the colour less brilliant, and the punctures in the striae a little smaller, so that there are generally 12 or 13 in the outer or subhumeral one; this is however variable and of little importance, but the more elongate after-body enables most of the specimens before me to be distinguished from *N. laeticulum*.

I have examined the wings (Plate VII. fig. 23) in nearly all the eighteen individuals. They are constant in size, but appear to vary a little as regards the distinctness of the nervures. A variety occurs in which there is a vague but large yellow patch on each wing-case before the tip. Fourteen of the specimens I have seen were found on

Molokai, two come from Maui, and two from Kauai. Apart from the fully developed wings these two Kauai examples appear to me to be indistinguishable from *Nesocidium laeticulum.*

Hab. Molokai. On several occasions in May and June, 1893, 1894 and 1896, in May and June, 4000 ft. (Perkins).—Maui, Haleakala 5000 ft., April 10, 1894 (Perkins, one specimen, No. 369); W. Maui, 1902 (Koebele, one specimen).—Kauai, Mountains, Waimea, June 1894, one specimen, October 1895, one specimen (Perkins).

NESOCIDIUM, gen. nov.

Alae vestigiales. Caput brevissimum. Prothorax utrinque setis duabus munitus.

This genus consists of ten species that are flightless, but have the full complement of thoracic setae. These forms are very varied and include some most aberrant Bembidiids. The metallic species however are generically distinguishable from *Bembidium molokaiense* only by the wings being vestigial. In the case of all the species except *N. laeticulum* this degradational character is pretty certainly complete and invariable; but in the case of *N. laeticulum* I believe this character loses its value, and I cannot refrain from suggesting that this species is dimorphic, and that the Kauai examples I have placed under *B. molokaiense* are sports, or reversional forms of *N. laeticulum.*

SECTION 1. Corpus supra metallescens. Elytra quadri-impressa.

The anterior impressions are large in all the species except *N. koebelei.* The posterior impressions differ, according to the species, in distinctness.

(1) *Nesocidium laeticulum*, sp. nov.

Nigrum, supra auratum, vel viridi-auratum, antennarum basi pedibusque rufo-testaceis, antennis extrorsum fuscescentibus; prothorace fortiter transverso; elytris versus basin subplanatis, ibidemque late bi-impressis; fortiter seriatim punctatis, dimidio apicali impunctato, perpolito. Long. $2\frac{1}{2}$—$2\frac{3}{4}$ mm.

Plate VII. figs. 20 & 24.

This pretty little insect has the thorax strongly transverse, and with very little sculpture in front of its obscure basal margin; it is very strongly transverse, the sides greatly rounded and much narrowed behind, and the hind angles are prevented from being obtuse by a sinuation that occurs close to them. The elytra are rather short and broad, with seven series of punctures on the basal part; the sutural series is continued as an impressed stria to the tip of the wing, the other series gradually become shorter, so that the outer one consists of not more than six or eight punctures just behind and outside the shoulder: the anterior impression on each is large and more or less affects three of the series of punctures and interstices; the posterior impression easily escapes notice, being merely a puncture placed on the third interstice. About fifty specimens.

I have examined the vestigial wings of 18 individuals, and find them to be unusually variable. They are never in the extremely reduced condition that is attained in many of the Anchomenides, but are always longer than the metanotum; the smallest vestige is about ·4 mm. long, the largest is about 1·2 mm. long; the majority of specimens are intermediate but there are three which do not depart very much from the smallest dimension, and there is one that nearly equals the most extreme specimen in the other direction. The individual with the vestige the largest is a specimen of a blue variety, taken at Waimea mountains, Kauai, 4000 ft., May 1894; the specimen that comes nearest to it is the only one of the species that has been found on Maui, Haleakala, 5000 ft., May 1894. Another specimen of the Kauai blue variety, the same locality and date as the other, has the vestiges only ·6 mm. long, or considerably less than the average. All the specimens are from Kauai except the one individual mentioned above as found on Haleakala. It is possible that this may prove to belong to another species, as it is in colour, sculpture and form nearer to *Bembidium molokaiense* than are any of the Kauai specimens. The vestiges appear also to be variable in shape, though it is difficult to estimate this as they are often crumpled. The vestige figured (Plate VII. fig. 24) is narrower than that of any other example. In examining this series I found two specimens with the wings fully developed, and I have therefore separated them from this genus and placed them in *Bembidium*. I shall not however be surprised if this winged form prove to be a discontinuous variation of *N. laeticulum*. If so, we have in *N. laeticulum* a species variable as regards the development of the wings in Kauai, and represented in Molokai by an extremely similar form, having the wings always well developed. The material is not however sufficient for final conclusions.

HAB. Kauai, Maui. Mountains, Waimea, 4000 ft., May 1894; Koholuamano, 4000 ft., April 1895.—Maui, Haleakala, 5000 ft., June 10, 1894; one specimen (Perkins).

(2) *Nesocidium lahainense*, sp. nov.

Nigrum, supra subviridi-micans, antennis pedibusque fusco-rufis, illarum basi femoribusque dilutioribus; elytris quadri-impressis, fortiter punctato-striatis, parte apicali laevigata, perpolita. Long. 2$\frac{3}{8}$ mm.

Very near *N. laeticulum*, but dark in colour, the striae or grooves of the elytra deeper, and the posterior pair of impressions larger. The elytra are a little narrower across the shoulders, so as to make some approach to *N. smaragdinum*.

I have examined the wings of the only two specimens that have been obtained of this species and find that they are reduced to small vestiges.

HAB. Maui. Lahaina (Koebele).

(3) *Nesocidium smaragdinum*, sp. nov.

Angustum, convexum, nigrum, supra laetissime viridi-micans, antennis pedibusque fusco-rufis; elytris angustis, humeris nullis, profunde quadri-impressis, fortiter punctato-striatis, parte apicali laevigata. Long. vix 3 mm.

At first sight similar to *N. laeticulum*, but undoubtedly distinct, by the form of the elytra, and by the four deep impressions thereon. The basal constriction or neck of the thorax is quite distinct, and the elytra at the shoulders are gently and gradually rounded off. Seven specimens.

Hab. Molokai. Mountains, 4500 ft., in June (Perkins).

(4) *Nesocidium fulgens*, sp. nov.

Angustum, convexum, piceum, supra laetissime viride, antennarum basi pedibusque flavis, antennis extrorsum obscuris; elytris angustis, humeris nullis, profunde quadri-impressis, fortissime punctato-striatis, dimidio apicali laevigato. Long. 2½ mm.

Differs from *N. smaragdinum* by the clear yellow legs, and the more deeply grooved elytra; the head and thorax are slightly narrower, the latter has the surface slightly strigose transversely; on the other hand the elytra are not quite so narrow as in *N. smaragdinum*. Six specimens.

Hab. Maui. Haleakala, 5000 ft., May 1893 and June 1896 (Perkins).

(5) *Nesocidium koebelei*, sp. nov.

Angustum, convexum, nigrum, nitidum, supra nigro-aeneum, antennarum basi pedibusque fusco-rufis; elytris, basi haud depressa, quadri-punctatis, punctis fere aequalibus, preterea fortiter punctato-striatis, dimidio apicali laevigato. Long. 2¾ mm.

This differs from the allied species, by the less flat base of the elytra, and by the anterior impressions thereon being smaller, interrupting only the third interstice. The thorax has a distinct constriction at the base, forming a short neck; the elytra are narrow and have no shoulders. One specimen.

We are indebted to Mr Albert Koebele for the discovery of this species.

Hab. Oahu. Mountains near Honolulu, 2000—3000 ft., 1897 (Koebele).

Section 2. Corpus superne haud metallicum; elytra interdum parum perspicue quadri-impressa.

(6) *Nesocidium perkinsi*, sp. nov.

Piceum, capite rufo, antennarum basi, pedibus elytrorumque maculis quatuor flavis; elytris profunde striatis, striis in parte basali fortiter punctatis, apicem versus desinentibus. Long. 3 mm.

A very elegant and perfectly shaped insect; the elytra exactly oval, each with a large humeral and another pre-apical yellow mark, with broad, deep, perfect, striate

sculpture at the base, the interstices between the striae quite narrow, very regular. Eyes moderately large. Antennae with the basal three or four joints yellow, the rest a little darker. Thorax small, straight in front, much narrowed behind, the hind angles definite, not depressed, almost rectangular; median channel definite. The striation of the elytra is wanting on the apical portion; the third interstice is interrupted by two punctures of about equal size, not minute. Two specimens.

I have much pleasure in naming this elegant little creature after Mr Perkins. It is rare to find the precinctive Hawaiian forms possessed of perfected details as is the case with *N. perkinsi*; its form recalls the perfect outlines and sculpture of some of the larger, apterous Carabidae found in various continental regions; there is a wide gap between it and any other Hawaiian species, nevertheless I think it may be placed in *Nesocidium* satisfactorily.

HAB. Kauai. Koholuamano, 4000 ft., April 1895 (Perkins).

(7) *Nesocidium rude*, sp. nov.

Piceum, capite rufo, antennarum articulo primo pedibusque flavis, elytris testaceis, plaga magna discoidali communi picea, striato-sulcatis, sulcis indistincte punctatis. Long. $2\frac{3}{4}$—3 mm.

Plate VII. fig. 21.

Antennae rather longer and stouter than in the allied forms. Thorax small, constricted at the base, the hind angles rectangular, median channel deep, transverse anterior impression present. Elytra ovate, deeply striate, the striae broad, indistinctly punctured, becoming vague behind, but still perceptible near the tip, third interstice with two rather large punctures. The colour pallid, with a large dark patch, vague in front, but definite behind, where it comes to a point on the suture a little before the tip. Legs clear yellow. Four examples.

This is certainly allied to *N. perkinsi*, though it looks almost as clumsy as that species does elegant.

HAB. Kauai. High plateau, August 1896 (Perkins).

(8) *Nesocidium corticarium*, sp. nov.

Elongatum, convexiusculum, nitidum, fulvo-rufum, antennis palpis pedibusque testaceis; elytris elongatis, quadri-impressis, ad basin punctato-striatis. Long. $2\frac{3}{4}$ mm.

This species is concolorous, with only the legs and base of the antennae paler. The eyes are rather small. The thorax is much narrowed behind, and slightly sinuate just at the hind angles, which are nearly rectangular; the median channel and the anterior impression are obsolete. The elytra are elongate ovate, with six striae, or rather series of punctures, the sutural stria is entire, the outer striae are very short, the sixth consisting only of three or four rather indistinct punctures; the pair of impressions on the third interstice small. Five specimens.

Similar in size and shape to *Nesocidium koebelei*, but readily distinguished by the colour and the smaller eyes.

HAB. Kauai. Mountains, Waimea, 4000 ft., June 1894; Koholuamano, April 1895 (Perkins).

(9) *Nesocidium atomarium*, sp. nov.

Nigrum, antennarum articulo basali pedibusque sordide rufis; prothorace vix transverso; elytris ovatis, convexis, seriatim parce punctatis, parte apicali impunctata. Long. $2\frac{1}{2}$ mm.

Distinguished from *N. corticarium* by the shorter form, the black colour, and the convex elytra. The antennae are obscure red, with the basal joint red. Thorax not much more than half as broad as the elytra, much narrowed behind, canaliculate on the middle; the systematic setae long. Elytra very convex, greatly rounded, with similar abbreviated series of punctures, but even more reduced.

HAB. Oahu. Mountains near Honolulu (Koebele). On *Pipturus*, back of Tantalus, August 1900 (Perkins).

(10) *Nesocidium scydmaenoides*, sp. nov.

Minutum, haud latum, rufulum, nitidum; prothorace vix transverso; elytris seriebus paucis et valde abbreviatis punctorum. Long. $2\frac{1}{3}$ mm.

Smaller than *M. atomarium*, narrower, dark red, unicolorous, and distinguishable from all its congeners by the narrow head with small eyes. The thorax is narrow, very shining, extremely finely canaliculate along the middle, moderately narrowed behind, enlarged just sufficiently at the hind angle to bear the seta. Elytra narrowly oval, convex, with a sutural stria extending to the tip and outside this with three other series, extremely abbreviated so that the outer consists only of about seven or eight rather obscure punctures. One male specimen.

HAB. Oahu. Ridge north of Nuuanu Valley, 2000 ft., October 25, 1892 (Perkins).

ATELIDIUM, gen. nov.

Corpus apterum, breve, convexum. Caput brevissimum. Thorax utrinque seta unica ad angulum basalem sita. Oculi mediocres.

This extraordinary little Bembidiid is much more obese than any of the species of *Nesocidium*, and is readily distinguished by the absence of the anterior of the two thoracic setae. The striation of the elytra extends considerably nearer to the tip than it does in *Nesocidium*.

(1) *Atelidium munroi*, sp. nov.

Breve, convexum, nigrum, nitidum, supra fusco-aeneo-micans, elytrorum apice maculaque humerali, pedibus, antennarumque basi testaceis; elytris sulcatis, sulcis ad apicem abbreviatis, obscure punctatis. Long. 3 mm.

Plate VII. fig. 22.

This is of a peculiar coloration, the upper surface having a faint metallic tinge, a spot at the shoulder and the tip being rather vaguely yellow. The thorax is transverse, slightly sinuate at the sides just at the hind angles, so that these may be described as rectangular denticles, the seta is placed as near as possible to the angle; the median channel is distinct; close to each hind angle there is a fovea, and between this and the median channel another depression. Elytra ovate, broad, short and convex, each with rather deep and broad striae, which are more or less distinctly punctate; they extend a good deal beyond the middle but not to the tip; the seventh is very short. Fourteen specimens.

Named in honour of Mr G. C. Munro, formerly of Kauai, who gave Mr Perkins much assistance in his work.

HAB. Kauai. Mountains, Waimea and Koholuamano, 4000 ft. (Perkins).

METROCIDIUM, gen. nov.

Corpus apterum, breve, convexum. Thorax absque setis erectis.

The genus resembles *Atelidium*, but is readily distinguished by the absence of thoracic setae.

(1) *Metrocidium brevicolle*, sp. nov.

Piceo-ferrugineum, supra capite et thorace subaenescentibus, antennarum basi pedibusque testaceis; elytris rufo-obscuris, apice pallidiore, punctato-sulcatis. Long. $2\frac{1}{2}$ mm.

Similar to *Atelidium munroi*, rather narrower, with the elytra paler and more concolorous, more deeply sculptured. Thorax strongly transverse, much narrowed behind, and there with a distinct, short constriction, the hind angles rectangular; the median channel distinct, the lateral margin normal; on each side with a deep, narrow, curvate impression close to the hind angle, and between this and the middle, with some less definite impressions in front of the base. Elytra very convex, covered with regular, deep, broad striae, which are distinctly punctate and extend much beyond the middle, though they leave the pallid apex unsculptured. Five specimens.

HAB. Kauai. Mountains, Waimea, 4000 ft. (Perkins).

(2) *Metrocidium admirandum*, sp. nov.

Latum, convexum, nigrum, nitidum, antennarum basi pedibusque testaceis; elytris pallidis, plaga maxima communi nigricante, profunde regulariter punctato-sulcatis; prothorace fortiter transverso, polito, margine laterali abnormaliter elevata. Long. 3½ mm.

This little insect is one of the most remarkable of the Hawaiian Carabidae. The antennae are rather dusky red at the base, becoming darker towards the extremity. Thorax strongly transverse, very polished and shining, with a slight brassy reflection, the lateral margin remarkably broad and outstanding, the median channel distinct, the sides much narrowed behind, the hind angles reflexed; a very deep small depression close to each, and some other inequalities about the base. Elytra very regularly oval, beautifully sculptured, with broad, deep, punctate striae extending nearly to the tip: the short supernumerary scutellar stria absent. Only one example has been discovered.

HAB. Kauai. High plateau, August 1896 (Perkins).

NESOMICROPS, gen. nov.

Oculi subobsoleti, parvi, nigrantes. Caput angustum. Elytra integra.

This genus and *Macranillus* offer a very interesting transition to the blind condition exhibited by small Bembidiids in various parts of the world. They agree with *Anillus* in having the elytra entire, completely covering the after-body, and the affinities are doubtless with the eyeless *Anillus*, rather than with the more numerous forms allied to *Scotodipnus*. In *Nesomicrops* the small eyes are black, and imperfectly faceted; moreover under the microscope the pigment appears to be wanting here and there. The mouth parts seem to be quite ordinary, the mandibles well-developed without any process externally. The short frontal grooves are widely separated, the clypeus large, the intraorbital setae normal. The thoracic setae are largely developed. The other parts exhibit no peculiarity that is not also present in *Nesocidium*. The small forms of that genus—*N. scydmaenoides* e.g.—are doubtless the nearest allies.

(1) *Nesomicrops kauaiensis*, sp. nov.

Angustus, pallide ferrugineus, antennis, palpis pedibusque flavis; elytris subtiliter striatis, striis obsolete punctatis. Long. 2½ mm.

Antennae moderately long and stout, red, with the base paler. Thorax nearly as long as broad, gently rounded at the sides and feebly sinuate at the hind angles, which are minutely prominent to carry the seta; the median channel is distinct, the anterior impression obsolete, the surface depressed, adjacent to the hind angles, without punctuation. Elytra long and narrow, rather dull, with feeble striae which become obsolete behind except the sutural one, the pair of impressions on the third interstice present, the anterior of the pair distinct, the posterior very small, placed just about the middle of the length. Legs pallid, feeble. Four specimens.

HAB. Kauai. High plateau, August 1896 (Perkins).

MACRANILLUS, gen. nov.

Oculi vestigiales. Caput angustum. Elytra integra.

There is a marked difference between the eyes of this genus and those of *Nesomicrops*, and this induces me to separate the two, though no other differential characters have been detected.

In *Macranillus* the eyes are not pigmented nor facetted, but are represented by two small, smooth, slightly raised areas. The frontal grooves are longer than in *Nesomicrops*, correlatively with a rather larger size of the head.

(1) *Macranillus coecus*, sp. nov.

Ferrugineus, elytris subtiliter striato-punctatis. Long. $2\frac{3}{4}$ mm.

This insect is more robustly formed than *Nesomicrops kauaiensis*, and has the elytra less pointed behind, and more definitely punctate. The antennae are stout, dark red in colour, the base paler. The thorax is slightly transverse, not greatly narrower than the elytra, otherwise formed much as in *N. kauaiensis*, the lateral margins rather stronger, the median channel fine. Elytra a little shining, the striation rather less developed than in *N. kauaiensis*, but the punctures a little more distinct. Legs red, rather stout. One specimen.

HAB. Kauai. High plateau, August 1896 (Perkins).

TACHYS Stephens.

The species of this genus are of comparatively little interest. It is doubtful whether they are really precinctive. They are most obscure, minute insects of a kind that occurs in various other parts of the world.

(1) *Tachys oahuensis*, Blackburn.

Tachys oahuensis Blackburn, Ent. Mo. Mag. xv. 1878, p. 158.

HAB. Oahu. Not uncommon on salt marshes near the sea (Blackburn).

(2) *Tachys arcanicola*, Blackburn.

Tachys arcanicola Blackburn, l. c.

HAB. Oahu. Very local, but not rare; under bark in some mountain localities, at an elevation of about 1500 ft. (Blackburn).

(3) *Tachys atomus*, Blackburn.

Tachys atomus Blackburn, l. c.

HAB. Oahu. Not rare, in moss, in mountain localities, at an elevation of about 1500 ft. (Blackburn).

(4) *Tachys mucescens*, Blackburn.

Tachys mucescens Blackburn, l. c.

Hab. Oahu. Unique; in decaying vegetable matter on the plains of Honolulu (Blackburn).

Group *LEBIIDES*.

The two forms of this group have very little claim to belong to the Hawaiian Fauna. *Plochionus pallens* appears however to be naturalised, though apparently it does not extend its range.

Plochionus Dejean.

(1) *Plochionus pallens*, Fabricius.

Carabus pallens Fabricius, Syst. Ent. (1775) p. 244.

Plochionus bonfilsii Dejean, Spec. Gén. I. p. 251.

Plochionus pallens Bates, Biol. Centr. Amer. Col. I. pt. 1, p. 198.

Hab. Mauai. Very rare (Blackburn, Perkins).

According to Bates this species is so widely distributed that its original home cannot be determined. He says that it frequents the baggage of passengers, so that it is no wonder that it is widely disseminated.

Saronychium Blackburn.

(1) *Saronychium inconspicuum* Blackburn.

Saronychium inconspicuum Blackburn, Ent. Mo. Mag. XIV. 1877, p. 142.

Hab. Oahu. In Honolulu and on Konahuanui (Blackburn, 2 specimens).

Fam. DYTISCIDAE.

Copelatus Erichson.

(1) *Copelatus parvulus*, Boisduval.

Colymbetes parvulus Boisduval, Voy. Astrolabe, Ent. p. 50.

Copelatus parvulus Sharp, Tr. Dublin Soc. (2) II. p. 568.

Copelatus mauiensis Blackburn, Tr. Dublin Soc. (2) III. p. 120.

This small insect, of slender, parallel form, and dull, silky surface, 4 or 5 mm. in length, cannot be confounded with the larger *Rhantus pacificus*, which is of oval outline and 10 or 12 mm. in length.

C. parvulus varies in colour, being sometimes blackish, sometimes dull ferruginous. I am quite unable to distinguish *C. mauiensis* as anything different from *C. parvulus*.

Hab. Oahu.—Lanai.—Molokai.—Maui.

RHANTUS Lacordaire.

Colymbetes pacificus Boisduval, Voy. Astrolabe I. p. 50.

Rhantus pacificus Sharp, Tr. Dublin Soc. (2) II. (1882), p. 607.

When dealing with this species, l. c., I stated that it varied so much that there might be two species. I had then only two specimens, and even at present I have seen only seven or eight; perhaps the difference in the specimens may be chiefly sexual, for the male appears to be considerably larger than the female.

HAB. Kauai.—Oahu.—Lanai.—Molokai.—Maui.—Hawaii.—Probably all the islands (Blackburn).

§ 3. Bionomical notes.

The following notes are in larger part gathered from correspondence that has been carried on with Mr Perkins during the preparation of this paper. As the information they give is of considerable interest I think it well to publish them. It will be seen that notwithstanding the small variety of structure that exists in the Hawaiian Carabidae the habits are singularly varied. In other words differentiation of habits has been up to the present greater than that of structure. This is quite in conformity with the views I have briefly expressed on p. 179. The doctrine, that differentiation of function precedes, on the whole, that of structure, was expressed by Herbert Spencer many years ago. The remark made on p. 291 by Mr Perkins as to *Colpodiscus lucipetens* is an exemplification of the same idea.

The quotation marks indicate the words of Mr Perkins. They were not intended for publication, but, as I have already said, they appear to me to be of so much interest that I take the liberty of printing them. His remarks refer chiefly to species of the Anchomenides, but we may hope that he will give us further information about Pterostichides and Bembidiides on some future occasion.

Blackburnia, p. 191. "Apparently found only under stones."

Deropristus, p. 192. "Never under stones, only beneath wood or fern-trunks." Mr Blackburn is said to have found the unique specimen of *D. blaptoides* under stones.

Atrachycnemis[1], p. 193. "Like *Deropristus*, never under stones."

Pseudobroscus, p. 196. "Under stones. Certainly very rare; everything has to be exactly right as to position of rock, dampness, etc., for this insect."

Anchotefflus, p. 195. The two species are terrestrial; *A. elegans* occurs under logs; *gracilis* under stones, Mr Perkins believes.

Mauna, p. 200. This is also terrestrial, living under stones.

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[1] On p. 195 I have expressed a doubt as to whether this genus is really found in the island of Hawaii. Mr Perkins has now informed me that it is not. The home of *A. koebelei* is W. Maui.

Derobroscus and *Brosconymus*, pp. 197, 198. Though these insects are most difficult to procure it is probable that they are, or have been, really abundant, and that their habits protect them against the collector. Of the four species Mr Perkins has only been able to find eight specimens during his ten years in the islands. Mr Blackburn, who worked principally in Oahu—the only island on which these forms occur—did not discover their existence. Unlike the preceding genera, all of which are terrestrial, the species of *Derobroscus* and *Brosconymus* are arboreal in habits, living for the most part concealed in holes or in the twigs, and extending apparently to any part of the tree that is suitable in its condition. This habit has not previously been recorded for Carabidae, though it is not improbable that it may be subsequently discovered to occur not infrequently in tropical forests.

Though this habit (combined with the possibility that these insects may be partially nocturnal in their activities[1]) protects the *Derobroscus* from the collector, it has failed to afford them a perfect protection from birds; of which indeed they appear to be a favourite food. "I think it fair to assume that the bird, *Oreomyza maculata*, finds plenty of the green Carabid. I shot four of these birds (two pairs), each pair widely separated—some miles at least. All of these had [in the alimentary canal] many fragments, thoraces and abdominal segments of one of these green Carabids (either *Derobroscus* or *Brosconymus*, probably *D. politus*). In no case were elytra present, and I am sure the bird tears them off before swallowing the beetle." *Derobroscus micans* apparently lives beneath tightly-fitting bark with other more commonplace Carabids. "*D. politus* and *Brosconymus* live in deep, small cavities in branches of trees or in the pith cavity of some dead branch, and they are naturally extremely difficult to find. I have reason to believe that they largely frequent high branches of tall Koa trees (judging from my extensive observations of *Oreomyza*), and that my captures from the lower branches were merely stragglers. *Oreomyza* will go over a Koa tree good for these beetles again and again: a small company (a pair or perhaps as many as eight individuals) is sure to be replaced by another such company many times a day, and they go over every crack and hole of the higher branches in the most methodical manner." It is very remarkable that these arboreal forms should be quite flightless.

Disenochus, p. 200. Some of the species are terrestrial, some arboreal. *D. anomalus* lives under stones; *D. brevipes*, *cephalotes*, *flavitarsis*, *longipes* and *fractus* are all arboreal, the first four are found only in the moss on the trees, the last in holes.

Anchonymus, p. 199. I have already recorded that this species forms a "lead" to *Derobroscus*; it lives under the bark, or in the holes, of trees.

Chalcomenus, p. 206. These winged forms are all terrestrial. "The Kauai species under logs only (I think); the others always under stones, and they sometimes range abroad in daylight, especially the Molokai species."

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[1] Although it would appear probable that Carabidae, so much sought by birds, should be active only at night, the comparatively brilliant colour of these Carabids suggests diurnal habits.

Barypristus, p. 208. "*B. rupicola* under rocks. *B. incendiarius* subarboreal; generally under bark of Koa, very low down, near the ground; or near the ground under bark. Sometimes under a detached Koa limb on the ground."

Baryneus, p. 209. This fully-winged form is "truly arboreal, and especially fond of Koa, and is found under the bark, or in hollows in branches, sometimes in the topmost twigs. Female seen ovipositing in the daytime in chinks of the bark of Koa."

Colpodiscus lucipetens, p. 210. "In West Maui, under stones on bank of stream, but in Olaa, Hawaii, generally under logs or fallen fern-stems, or decayed vegetable matter. Might become modified for this reason into two, quite credibly."

Prodisenochus, p. 210. "Terrestrial; logs or wood, very particular as to soil, conditions of dampness, etc., like *Atrachycnemis* and others, perhaps even more so."

Mysticomenus, p. 212. Under bark, as far as Mr Perkins has observed *M. tibialis*.

Colpocaccus tantalus, p. 214. "Under bark of Koa commonly, at bases of the leaves of *Freycinetia*, under stones in wet places and in decaying vegetable matter. Very curious, compared with most of the other Carabids. The other species of this genus are probably more or less indiscriminate in their choice."

Metromenus, p. 231. In this genus the habits also vary according to the species. "Some are found only under bark, others only at the bases of the leaves of lilies, *Freycinetia*; others purely terrestrial under stones or logs. A few species of this genus and of *Mesothriscus* are irregular in habits, like *Colpocaccus*."

Pterostichides, p. 243. The species are generally either purely arboreal or purely terrestrial. It is worthy of note that a very large proportion of Mr Perkins' specimens of certain species of *Mecyclothorax* were taken on one occasion near the summit of Haleakala. *M. pusillus*, *rusticus*, *micans* and *subconstrictus* were then procured in numbers. These are very closely allied forms, and the distinction of the species has in this case nothing to do with geographical segregation.

§ 4. List of works relating to Hawaiian Caraboidea (arranged chronologically).

It may be pointed out that in 1835 only three species were known; and that in the period of 42 years between that date and 1877 no advance whatever was made.

1. Erichson, W. F. [in] Meyens' Beiträge zur Zoologie, gesammelt auf eine Reise um die Erde. Acta Ac. Germanica, xvi. suppl. (1834), pp. 219—284.
   Anchomenus corruscus, n. sp.

2. Boisduval, J. A. Faune de l'Océanie. Voyage de l'Astrolabe, Zoologie, ii. (1835).
   Colymbetes parvulus and *C. pacificus*, n. spp.

3. Blackburn, T. Characters of a new genus, and descriptions of new species, of Geodephaga from the Sandwich Islands. Ent. Mo. Mag. xiv. 1877, pp. 142—148.
   gen. n. *Saronychium*, and 16 new species of Anchomenides.

4. Sharp, D. Description of a new species probably indicating a new genus of Anchomenidae. from the Sandwich Islands. Tom. cit. pp. 179, 180.
   Blackburnia insignis.

5. Blackburn, T. Characters of new genera and descriptions of new species of Geodephaga from the Hawaiian Islands. ii. Op. cit. xv. 1878, pp. 119—123, 156—158.
   Atrachycnemis, *Disenochus*, n. genn. Twenty-five new spp.

6. ——. [As above.] iii. Op. cit. xvi. 1879, pp. 104—109.
   Eight n. spp. Observations on characters of Anchomenides.

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   Describes and figures five species of Carabidae from Maui as new. These are discussed by Blackburn (cf. No. 9), who considers them all synonyms. But this must remain doubtful till the types have been examined.

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    Copelatus mauiensis, n. sp. Systematic catalogue and topographical table. Figures of *Blackburnia insignis*, *Mysticomenus mysticus*, *Colpodiscus lucipetens*, *Metromenus fossipennis*, *Mecyclothorax multipunctatus*, *Metrothorax scaritoides*.

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OR THE

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Being Results of the Explorations instituted by the Joint Committee appointed by

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SECRETARY OF THE COMMITTEE.

VOLUME III. PART IV.

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THYSANURA.

H. S. Barber,
U. S. National Museum,
Washington, D. C.

By Filippo Silvestri (Bevagna, Italy).

(Plate VIII.)

No Thysanura have, until now, been known from the Hawaiian islands. The collection of these Insects, that I have studied through the kindness of Dr D. Sharp, comprehends only four species, all new and belonging to the cosmopolitan genera *Japyx* (1), *Machilis* (2), and *Lepisma* (1). The small number of the species does not permit any inference as to the distribution of these interesting Insects, but I hope that the Entomologists of the Hawaiian islands will give more attention to this group, and publish supplementary information on the Hawaiian Thysanura and on their relationship with those of other islands.

Fam. CAMPODEIDAE.

Campodea Westw.

Individuals of this genus are very numerous in the Islands, but Mr Perkins has not been able to preserve any specimens in a state fit for study or identification. He has observed that this Insect is introduced in the earth connected with imported plants.

Fam. JAPYGIDAE.

Iapyx Hal.

(1) *Japyx sharpi*, sp. nov.

Pallide cremeus, segmento abdominali decimo et forcipe ferrugineis, forcipis marginibus latericiis.

Antennae sat breves, basi incrassata, apicem versus gradatim magis attenuatae, articulis 38 compositae, articulo singulo latiore quam longiore, setis longis sat robustis et setis sat brevibus instructis, articulo quarto setis tribus sensoriis (Pl. VIII. fig. 1—2, s^1—s^3) instructo, articulis quinto et sexto setis sensoriis quinque (fig. 1—2, s^4—s^8, s^9—s^{13}) in articulo singulo. Setae sensoriae (fig. 3) valde attenuatae, parte distali plumosa.

Thorax. Tergita et sternita setis nonnullis longis et setis sparsissimis brevibus instructa. Pedes coxa et trochantere setis nonnullis longis, femore setis duabus inferis, longioribus et setis superis nonnullis sat brevibus, nec non seta longa, tibia infra setis duabus sat longis, robustis, nec non setis sat brevibus sat robustis et setis brevibus, tarso

(fig. 4) infra setis longis, sat robustis, sat numerosis aucto, quam tibia fere duplo breviore, praetarsi unguibus longis, ungue majore quam tarsus fere $\frac{1}{3}$ breviore.

Abdomen. Tergita setis 6 antice, quarum laterales ceteris longiores, et setis 4 posticis longioribus, quarum duo laterales, duo submedianae sunt, nec non setis nonnullis brevibus instructa. Subcoxae segmenti primi (fig. 5 *sc*) papilla laterali setis brevibus et brevioribus pluribus, nec non serie marginali setarum sat longarum aucta, instructae et setis nonnulis anticis sat longis, setis brevioribus et setis medianis posticis uniseriatis praeditae. Subcoxae segmentorum 2—8 (fig. 6) setis nonnullis longis, robustis, irregulariter 4-seriatis, nec non setis paucis brevioribus auctae. Styli attenuati, conici, acuti, breviores, seta brevi externa instructi. Tergitum septimum (fig. 8) utrimque postice rotundatim valde exciso, angulo postico acute producto. Segmentum decimum fere $\frac{1}{3}$ longius quam latius, setis sparsis sat longis auctum.

Forcipis (fig. 7) brachium dextrum quam laevum parum crassius, dente majore ad eundem brachii laevi opposito et quam idem parum minore, tuberculis basalibus 5—6 sat magnis, tuberculis distalibus minimis fere usque ad apicem brachii sistentibus. Brachium laevum quam dexterum parte distali aliquantum magis attenuata et arcuata, tuberculis distalibus supra inconspicuis, subtus vix manifestis. Forcipis brachia setis nonnullis longis et setis nonnullis brevibus aucta.

Long. corp. m. 10; lat. segmenti septimi 1, 8; long. antennarum 2, long. forcipis 1, 1

Hab. Kauai: Kaholuamano (Perkins, IV. 1895); Halemanu 4000 feet, V. 1895 Perkins.

This new species, which I have much pleasure in naming in honour of Dr Sharp, is easily distinguished from others by the form of the forcipula and the armature of the antennae and of the subcoxae of first abdominal segment.

Fam. MACHILIDAE.

Machilis Latr.

(1) *Machilis perkinsi*, sp. nov.

♂ Long. corp. 15; lat. thoracis 3, 2; long. antenn. 20, long. cerci mediani 10 (probab. 20—25). Long. cerci lateralis 5, long. styli primi 0·9, long. styli ultimi 1·5.

Color in exemplo in spiritu vini asservato, castaneus.

Oculi (Pl. VIII. fig. 17 *o*) parvi, inter sese spatio perparvo tangentes. Oculus singulus parum minus quam $\frac{1}{3}$ latior quam longior. Ocelli (fig. 9 *oc* et fig. 17) nigri, transversales subrectangulares, aliquantum magis externe quam oculi incipientes, et usque ad dimidiam partem eorumdem extensi. Antennae squamis et setis instructae, quam corpus $\frac{1}{4}$ longiores, articulo primo (fig. 9 *A*) quam clypeus et labrum, simul sumpta, parum longiore, parum minus quam $\frac{2}{3}$ longiore quam latiore, cetero apicem versus gradatim parum attenuato.

Palpi maxillares (fig. 10 *pa*) crassi, sat breves, squamis et setis brevibus vestiti, articulo sexto ceteris crassiore et infra ad apicem pulvillo brevi, sed latiore aucto, articulo primo processu supero postero (fig. 10 *pr*) subtriangulari, perbrevi instructo, articulo sexto quam ultimus $\frac{1}{4}$ longiore, articulo ultimo apice rotundato.

Palpi labiales (fig. 11 *pl*) articulo ultimo cylindrico, apicem versus parum incrassato, appendiculis subconicis, sat brevibus, aucto.

Thorax. Arcus thoracicus sat parvus. Pedes sat longi et sat robusti, primi paris (fig. 12) femore multo magis quam duplo longiore quam latiore, tarso quam tibia $\frac{1}{3}$ longiore, articulo tertio tarsali quam secundus $\frac{1}{3}$ breviore, setis sat longis et sat brevibus, subtilibus instructo.

Pedes ceteri processu coxali quam coxa fere duplo breviore.

Abdomen. Sternum (fig. 13) parte mediana (*stm*) triangulari sat parva, in segmento quarto aeque longa ac lata. Styli 1—7 sat attenuati, setis subtilibus sat longis, nec non seta longa et robustiore apicali aucti. Styli ultimi quam subcoxae parum breviores, seta apicali quam stylus $\frac{2}{3}$ breviore. Vesiculae subcoxales duo in segmentis abdominalibus 1—7. Penis quam paramera paullulum longior et quam subcoxae parum brevior. Cerci squamosi, parte proximali cercorum lateralium setis brevioribus robustis armata. Cercus medianus quam corpus $\frac{1}{4}$ longior, quam cerci laterales $\frac{3}{4}$ longiores.

HAB. Kauai: Mt Waimea, 4000 feet, Perkins 1894, v.

I know no species with the male palpi as in this, which I take pleasure in naming after Mr Perkins, the Entomologist, to whom science is indebted for his careful investigation of the fauna of the Hawaiian islands.

(2) *Machilis heteropus*, sp. nov.

Long. corp. 13; lat. thor. 3; long. antenn. 20; long. cerci med. 18; long. cerci lat. 7; long. styli primi 1; long. styli ultimi 1·6.

Color in exemplis exsiccatis castaneus, nitens.

Oculi (Pl. VIII. fig. 18 *o*) sat parvi, inter sese spatio sat parvo tangentes. Oculus singulus parum minus quam $\frac{1}{3}$ latior quam longior. Ocelli (fig. 18 *oc*) nigri, transversales, subrectangulares, a margine laterali oculorum usque fere ad eorundem partem medianam extensi.

Antennae squamis et setis instructae, quam corpus aliquantum minus quam duplo breviores, articulo primo quam clypeus parum longiore, $\frac{1}{5}$ longiore quam latiore, cetero apicem versus gradatim parum attenuato.

Palpi maxillares (fig. 14) sat attenuati et elongati, articulo primo processu supero postico (*pr*) triangulari, sat magno, aucto, articulo ultimo quam penultimus paullulum breviore, conico, parte distali articuli quinti, articulis sexto et septimo antice setis brevibus, spiniformibus armatis.

Palpi labiales articuli ultimi apice sat clavato.

Thorax. Arcus thoracicus sat parvus. Pedes sat longi et sat attenuati, primi paris femore parum magis quam duplo longiore quam latiore, tarso quam tibia parum longiore, articulo tertio tarsali parum magis quam $\frac{1}{3}$ quam secundus breviore, infra setis subtilibus sat brevibus instructi.

Abdomen. Sternum parte mediana sat magna, in segmento quarto fere $\frac{1}{4}$ latiore quam longiore. Styli 1—7 setis brevibus, ad apicem longis, subtilibus, nec non seta apicali longa, robusta aucti. Styli ultimi quam subcoxae parum magis quam $\frac{1}{3}$ breviores, seta apicali quam stylus fere duplo breviore. Subcoxae segmentorum abdominalium 1—7 utrimque vesicula singula auctae. Ovipositores tenues, setis subtilibus, sat brevibus instructi, quam styli ultimi aliquantum longiores.

Cerci squamosi, parte proximali setis robustis, brevibus infra armati, et setis spiniformibus sat longis, in verticillis, inter sese parum remotis, dispositis. Cercus medianus quam corpus fere $\frac{1}{3}$ longior, quam cerci laterales aliquantum minus quam $\frac{2}{3}$ brevior.

♂ Pedes primi paris (fig. 15) tibia infra valde producta et pulvillo setarum perbrevium aucta, tibia tota $\frac{1}{3}$ longiore quam latiore.

Palpi maxillares attenuati ut in foemina.

Penis (fig. 16 *pe*) quam subcoxae parum brevior, et quam paramera postica (par^2) paullulum longior.

Hab. Kauai: Koholuamano, 1895 Perkins.—Oahu: Waianae Mts. Nuuanu Valley (Perkins IV. 1892); Lanai, 2000 feet (Perkins I. 1894).—Maui: Haleakala, 5000 feet, Perkins V. 1896.—Hawai: Olaa, 2000 feet.

This new species is very distinct by the form of the tibia of the front legs of the male.

Lepisma Linn.

(1) *Lepisma hawaiiensis*, sp. nov.

♀ (Pl. VIII. fig. 19—19^a) L. supra griseola nitens, subtus argentea.

Antennae in exemplis a me inspectis certe articulis partim abruptis, corporis longitudine aliquantum longiores existimatae, attenuatae. Oculi parvi.

Palpi maxillares attenuati, 5-articulati, articulis 4—5 inter sese subaequalibus. Palpi labiales articulo ultimo valde dilatato, crassiore.

Thorax tergitorum margine postico sinuato, marginibus lateralibus setis brevibus instructis. Pedes coxis magnis rotundatim valde dilatatis, femore et trocantere infra setis sat robustis instructis, tibia infra setis nonnullis robustis paucis et setis numerosis brevioribus, subtilibus aucta, tarso longitudine subaequali, tarso (fig. 20) articulis quatuor composito, sed articulo quarto a tertio parum distincto, praetarso unguibus lateralibus magnis, sat arcuatis.

Abdomen. Tergita 1—9 margine postico areolis parvis tribus, setis nonnullis robustis auctis, instructo, areolarum duo sublaterales, duo laterales superae, et duo laterales inferae. Subcoxae segmentorum 1—7 areolis setosis tribus marginalibus instructae, quarum utrimque una lateralis, una impar mediana est. Styli segmenti 8i quam idem segmenti 9i aliquantum breviores, pilis brevibus vestiti.

Tergitum decimum (fig. 22—23 t^{10}) magnum, postice triangulariter valde producto apice acuto, setis marginalibus nonnullis auctum.

Cerci attenuati setis sat longis et robustis verticillatis aucti, in exemplis a me inspectis partim abruptis, aliquantum magis quam corporis longitudo longiores existimandi sunt. Lamina supraanalis (fig. 23 *ls*) postice valde sinuata.

♂ (Pl. VIII. fig. 24) quam foemina aliquantum minor.

Tergitum decimum (fig. 25—26 t^{10}) quam idem foeminae brevius. Laminae adanales (fig. 26 *la*) lateraliter aliquantum acute productae.

Penis brevior, paramera (fig. 27 *par*) quam apex subcoxae, acute valde productus, parum breviora, subconica.

HAB. Kauai 4000 feet (Perkins).

This species appears to me very distinct by the form of the 10th abdominal tergit.

COLLEMBOLA.

H. S. Barber, U. S. National Museum, Washington, D. C.

By Geo. H. Carpenter, B.Sc. Lond., M.R.I.A.

(Plate IX.)

The Collembola or Springtails are insects whose wingless condition is apparently primitive; they differ from the Thysanura or Bristletails, the other division of the Aptera, in having only six evident abdominal segments, to the fourth of which belongs the peculiar saltatory organ, formed by the partial fusion of a pair of appendages and known as the "spring." The maxillulae—a small pair of jaws between the mandibles and maxillae—are fairly well developed in the Collembola as in the Thysanura; in the winged insects these jaws are always vestigial or absent.

Nothing has been hitherto published on the Collembola of the Sandwich Islands. Indeed very little is known of these insects outside Europe and North America. Therefore, although the five species described in the present paper appear to be peculiar to the Sandwich Islands, it is not impossible that some of them may yet be found in other parts of the world, or may be shown, by the discovery of connecting links, to be not distinct specifically from other forms. All of the species belong to large and widespread genera, and four of them have been found each on but one of the islands. The fifth, which is the only representative of the family Achorutidae, occurs both in Oahu and in Maui.

Two of the three families of Collembola are represented in the collection, the most highly specialized family, the Sminthuridae, characterised by their sub-globular abdomen with indistinct segmentation, being absent. The two families to be dealt with are easily separated as follows:

Spring well-developed; body scaled or not scaled .... *Entomobryidae.*
Spring vestigial or absent; body never scaled .... *Achorutidae.*

The Achorutidae are represented by one species only. Three genera of Entomobryidae are present, which may be distinguished thus:

Fourth segment of abdomen nearly the same length as the third .... *Isotoma.*
Fourth segment of abdomen at least three times as long as the third.
    Body covered with scales .... *Lepidocyrtus.*
    Body without scales .... *Entomobrya.*

Fam. ENTOMOBRYIDAE.

Lepidocyrtus Bourlet.

This is a large and widespread genus, many species of which have been described from various regions. The discrimination of the species is difficult on account of the slight, comparative characters on which most of them are founded.

(1) *Lepidocyrtus heterophthalmus*, sp. nov. (Pl. IX. figs. 1--6).

Length 2 mm. Antennae slightly longer than the head; relative length of segments as 3 : 5 : 3 : 7 (fig. 1). Eight ocelli on each side, two proximal much smaller than, and behind the other six (fig. 2). Thorax markedly overhanging head. Feet without tenent hairs; each upper claw with two small but distinct teeth; lower claws elongate and untoothed, those on fore-feet less elongate than those on middle and hind-feet (figs 3, 4). Fourth abdominal segment four times as long as third. Dens as long as manubrium; mucro elongate with the usual apical tooth, a prominent ante-apical tooth and a rather stout basal tooth (fig. 5). Colour of dried specimens silvery-white with metallic reflections. Scales very variable in form, but all markedly longer than broad (fig. 6).

The absence of tenent hairs on the feet, together with the size and arrangement of the ocelli, distinguish this species from all the Lepidocyrti known to me. Its nearest ally seems to be *L. ralumensis*, Schäffer[1], from Ralum, in the Bismarck Archipelago, which has short tenent hairs on the feet, and the two proximal ocelli much smaller than the other six, but not so distinctly posterior in position as in this Hawaiian insect.

Hab. Hawaii: Kona, 2000 ft., Perkins, Sept. 1892; Mauna Loa, 4000 ft.

Entomobrya Rondani.

Degeeria Nicolet, Nouv. Mém. Soc. Helvet. Sci. Nat. 1842 (nom. praeocc.).
Sinella Brooke, Journ. Linn. Soc. (Zool.) 1882.

This is another cosmopolitan genus in which many species have been described, largely on account of differences in colour and markings. Two very distinct forms—one from Hawaii and the other from Kauai—are present in the Sandwich Islands. They may be readily recognised thus:

(*a*) Colour yellow with lateral purple stripes; feet with tenent hairs; mucro with basal tooth .... *insularis*.
(*b*) Colour yellow with complex purple markings; feet without tenent hairs; mucro with no basal tooth .... *kalakaua*.

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[1] Archiv für Naturgeschichte, LXIV. 1898, Bd. I. p. 418.

(1) *Entomobrya insularis*, sp. nov. (Pl. IX. figs. 7—11).

Length 2 mm. Antennae 2·7 times as long as head; relative length of segments as 6 : 11 : 9 : 10 (fig. 7). Eight ocelli on each side, arranged as usual in an outer sinuous and an inner even row, the hindmost ocellus of the latter much smaller than the rest (fig. 8). Legs slender and very long. Feet with very prominent tenent hairs; upper claws straight with two prominent teeth; lower claws untoothed, parallel-sided in fore-foot, more tapering on middle and hind-feet (figs. 9, 10). Fourth abdominal segment five times as long as the third. Dens nearly as long as manubrium; mucro stout, with straight ventral edge, blunt apical tooth, prominent ante-apical tooth and slender basal tooth (fig. 11). Colour pale chrome yellow with purple markings, viz.—paired narrow lateral stripes on head, marginal stripes on mesothorax, angular marks on metathorax, and lateral stripes from front of abdomen to the middle of the fourth segment. Body and legs with numerous plumose hairs.

Structurally, this species seems to come nearest to the widespread *E. marginata* Tullb. (see Schäffer, loc. cit. supra), but the dark bands on the hinder edge of each abdominal segment, which characterise even the pale varieties of that insect, are quite wanting in the present form, which is moreover of larger size and possesses more robust foot-claws and mucrones than the European species known to me.

HAB. Hawaii: Mauna Loa, 4000 ft., August, 1892, two specimens; Kona, 2000 ft., Perkins, Sept. 1892, several specimens.

(2) *Entomobrya kalakaua*, sp. nov. (Pl. IX. figs. 12—16).

Length 2·3 mm. Antennae (last segment missing) about half as long as head and trunk; relative length of segments as 5 : 10 : 9 : ? (fig. 12). Eight ocelli on each side, three large and a smaller hind one arranged in the outer slightly sinuous row, and four in an inner straight row, the front one small, the next smaller, and the two hinder widely separated and very small (fig. 13). Feet without tenent hairs, upper claws strong and slightly curved, each with two prominent teeth; lower claws small, untoothed and tapering (figs. 14, 15). Fourth abdominal segment four times as long as third. Dens slightly longer than manubrium; mucro with prominent ante-apical and apical teeth, but without basal tooth (fig. 16). Colour bright chrome-yellow with complex purple markings consisting of lateral stripes on the head, broad lateral stripes and central patches on the mesothorax and metathorax, broad transverse bands with sinuous front-margins on the hinder edge of the second and third abdominal segments; on the fourth abdominal segment four lateral stripes, the two outer of which have an irregular, zigzag form, and unite centrally and anteriorly; on the fifth abdominal segment an apical patch. First antennal segment light purple, second and third dark violet.

The presence of sixteen ocelli and the absence of tenent hairs on the feet render this species an interesting link between typical Entomobryae (with sixteen ocelli and tenent hairs) and Sinella (with few ocelli and no tenent hairs). The proposal of Schött[1], supported by Schäffer, that these two groups are not generically separable, thus finds strong support. It is satisfactory that the single specimen of this handsome species is better preserved than most of the collection.

Hab. Kauai, Koholuamano, Perkins, April, 1895. One specimen only.

Isotoma Bourlet.

This large and cosmopolitan genus is easily recognised by the absence of scales, the forwardly directed head, and the approximate equality in length of the third and fourth abdominal segments. The single species in the present collection is of very small size, and presents an unusual assemblage of characters.

(1) *Isotoma perkinsi*, sp. nov. (Pl. IX. figs. 17—19).

Length 1 mm. Antennae 1·5 times as long as head; relative length of segments as 3 : 6 : 4 : 5 (fig. 17). Eight ocelli on each side. Each foot with a tenent hair, upper claw evenly curved and toothless, lower claw with a small tooth (fig. 18). Spring evidently borne on the fourth abdominal segment[2], elongate; dens three times as long as manubrium; mucro with evenly curved ventral edge, two rather prominent teeth and a small accessory tooth (fig. 19). Colour apparently purplish-yellow with the antennae dark, the legs and spring pale.

The single specimen on which this species is founded had unfortunately been allowed to dry up, so that it was impossible to make any detailed examination of the ocelli or to see the post-antennal organ. The peculiarity of the species lies in the evident presence on the fourth abdominal segment of an elongate and slender spring, with a typical mucro. Usually in the genus Isotoma, when the spring occurs in this position (instead of apparently on the fifth segment) it is short with a stout and blunt mucro.

Hab. Kauai, Koholuamano, Perkins, April, 1895. One specimen.

Fam. ACHORUTIDAE.

Neanura MacGillivray.

Anoura Gervais, Suites à Buffon, Insectes Aptères, 1844 (nom. praeocc.).

The insects of this genus are characterised by the tuberculate appearance of the body, the conical projecting mouth, the absence of a lower claw to the foot, of anal spines and of pseudocelli; also by the presence of a peculiar sense-organ at the tip of the fourth antennal segment. Ocelli and a post-antennal organ are usually present. Several species of the genus have now been described from various parts of the world. That now before us seems to be by far the most plentiful and widespread springtail in the Sandwich Islands.

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[1] Proc. Calif. Acad. Sciences (2), vol. vi. 1896, p. 180.

[2] Willem has shown (Mém. Cour. Acad. Roy. Sciences Belgique, lviii. 1900) that the spring of the Collembola always belongs to the fourth abdominal segment, though in most forms it looks as if inserted on the fifth.

(1) *Neanura citronella*, sp. nov. (Pl. IX. figs. 20—27).

Length 2 mm. Colour in life[1] light orange. Head as long as broad. Antennae half as long as head (fig. 21), relative length of segments as 5 : 7 : 4 : 6; a groove at the distal end of the second segment (fig. 27 *gr*), a reduced sense-organ on the third segment (fig. 27 *a. o.* 3), the characteristic antennal organ on the fourth segment consisting of several small globular prominences closely grouped together[2] (fig. 27 *a. o.* 4). Ocelli three on each side (but in some specimens two only can be distinguished); apparently degenerating and without pigment (fig. 26). Post-antennal organ rudimentary, consisting only of a few extremely minute prominences in a groove of the integument (fig. 26). Six prominent globular tubercles on each body segment (fig. 20). Feet with elongate setae and long evenly curved claws, each with a single tooth and a small basal appendage (fig. 22). Vestiges of the spring (fig. 23 *f*) can be seen on the ventral aspect of the abdomen.

A dissection of the jaws of this species (fig. 25) shows that the mandibles have a series of sharp teeth at their extremity, of which the proximal is much the largest (fig. 25 d), while the maxilla possesses a distinct galea with teeth (fig. 25 c, *ga*), a lacinia fringed with curved setae (fig. 25 c, *la*), and a small conical palp (fig. 25 c, *p*). The maxillulae (fig. 25 a, b, *mxl*) are very delicate, but quite distinguishable.

This species comes nearest to the Oriental *N. fortis*, Oudemans[3], which has six ocelli but no post-antennal organ and no tooth on the claw, and the Alaskan *N. ornata* Folsom[4], which exhibits the degraded ocelli of the present species, but is white in colour, and has the tooth of the foot-claw basal in position. In general aspect our insect resembles *N. tasmaniae* Lubbock[5], from Tasmania, of which few structural details are given. The latter species, however, is purplish in colour.

HAB. Oahu: Waianae Mts., 2000 ft., Perkins, April 1892, Sept. 1896, under bark of Acacia; Honolulu, July 1896.—Maui: Haleakala, 5000 ft., Perkins, May 1896.

There can be little doubt that the five species described in this paper represent but a fraction of the springtail-fauna of the Sandwich Islands.

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[1] I am indebted for this character to a MS. note by Mr Perkins. All the specimens are now dried up and white. It is very likely therefore that the breadth of the insect is relatively greater than shown in fig. 20.

[2] For an account of these organs see Absolon, Zool. Anzeiger, xxiv. 1901, pp. 575—585, and Börner, Zool. Anzeiger, xxv. 1902, pp. 92—116.

[3] Weber's Ergebn. Reise Nederl. Ostindien, 1890, p. 91.

[4] Proc. Washington Acad. Sci. iv. 1902, p. 89.

[5] Journ. Linn. Soc. (Zool.) xxvii. 1899, p. 335.

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MALLOPHAGA FROM BIRDS OF THE HAWAIIAN ISLANDS.

By V. L. Kellogg and B. L. Chapman, Stanford University, California[1].

(Plate X.)

[155] The Mallophaga (biting lice) identified and described in this paper were collected by Mr Richard C. MacGregor from birds shot and identified by himself in the Hawaiian Islands, and constitute the first collection of insects of this order made in the islands. The collection includes twenty species of parasites taken from twelve species of birds. Of these twenty species fourteen are here named and described as new, four are named and described as varieties of previously known species, while but two can be considered typical representatives of already known species. Of the twelve bird species composing the list of hosts, four are species peculiar to the Hawaiian Islands, and the parasites of these hosts are all new species except the two taken from the Hawaiian coot, *Fulica alai*.

The collection is too small and the new species in it altogether too strongly in the majority, to make profitable any attempt to compare the Mallophaga of Hawaii with those of other regions.

The occurrence of *Lipeurus docophoroides*, the typical parasite of the California partridges, on the introduced Indian "minha" is interesting, but is probably explained by the ground-feeding habits of the "minha" and the introduction into Hawaii of the partridges. Interesting also and not so readily explicable is the occurrence of *Oncophorus adena*, a characteristic parasite of coots and found in the Hawaiian coot, on the forest inhabiting honey-sucker, *Vestiaria coccinea*.

The following is a list of the papers by Kellogg (as sole or joint author) constantly referred to in the following pages by abbreviated titles.

New Mallophaga, I; Contributions to Biology from the Hopkins Seaside Laboratory of the Leland Stanford Junior University, No. IV. 1896.

New Mallophaga, II; Contributions to Biology from the Hopkins Seaside Laboratory of the Leland Stanford Junior University, No. VII. 1896.

New Mallophaga, III; Contributions to Biology from the Hopkins Seaside Laboratory of the Leland Stanford Junior University, No. XIX. 1899.

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[1] Reprinted, by permission, from the Journal of the New York Entomological Society, Sept. 1902, pp. 155—169, Pls. xiii, xiv, xv. The digits in square brackets give the original pagination.

A List of the Biting Lice (Mallophaga) taken from Birds and Mammals of North America, Proc. U. S. Nat. Mus., vol. XXII. pp. 39—100, 1899.

[156] Mallophaga from Birds of the Galapagos Islands, Proc. Wash. Acad. Sci., Vol. IV. pp. 457—499, 1902, Pls. xxviii—xxxi.

Mallophaga from Birds of the Pacific Coast of North America, Jour. New York Ent. Soc., vol. X. pp. 20—28, 1902.

The nomenclature of the host birds used in this paper is that adopted by Bryan in his Key to the Birds of the Hawaiian Group (1901, Bishop Museum, Honolulu).

Docophorus.

(1) *Docophorus communis*, Nitzsch.

Docophorus communis Germar, Mag. für Ent., III. p. 290, 1818; Kellogg, List of N. A. Mallophaga, p. 50, 1899.

From *Carpodacus mexicanus obscurus* (Pun Olai, Maui Island), and *Munia nisoria*.

(2) *Docophorus macgregori* [sp. nov.].

♀. Body, length 1·45 mm.; width, ·53 mm.; head dark chestnut-brown, body uncoloured with distinct triangular lateral blotches; genital blotch showing through body. Plate X. fig. 1.

Head, length ·5 mm.; width ·48 mm.; triangular, forehead tapering and clypeal front narrow and slightly concave, with two short hairs on the lateral margin, one longer hair rising in front of the sutures, and one short prickle at the suture; trabeculae prominent, nearly as long as the first two segments of the antennae, deep chestnut-brown at the base, with uncoloured tip; eye indistinct with one long hair, and near the posterior margin a second long hair; temples rounding, with four long hairs, the three in the temporal angle are pustulated, occipital margin weakly convex; ground colour of head chestnut-brown, signature distinct, anterior margin deeply concave, with a slight lateral constriction near the anterior angles, lateral margins rapidly diverging, forming sharp posterior angles, the posterior margin extending backward in a long, acute angle beyond the mandibles; antennal bands interrupted at the suture, dark chestnut-brown, the posterior extremities bending inward and back, meeting the dark brown occipital bands; temples an even rich chestnut-brown.

Prothorax small, lateral margins slightly diverging; lateral blotches dark chestnut-brown, separated by a broad light medium line; lateral margins blackish. Metathorax with strongly divergent lateral margins, angulated on abdomen, with distinct lateral blotches separated medially by an uncoloured line, with a series of long pustulated hairs along the posterior margin. Sternal markings of dark chestnut-brown, intercoxal lines showing through the surface. Legs pale chestnut-brown, darkening slightly on anterior margins.

Abdomen ovate, widening gradually to segment 4 and rounding rapidly to segment 9, lateral angles rounding with one to three long hairs; many long, pustulated, dorsal hairs in a transverse series in the posterior margin of each segment; lateral transverse triangular blotches dark chestnut-brown, darkening slightly on the lateral margin; the posterior margin interrupted by the uncoloured pustulations; median portion of the abdomen uncoloured; segment 8 entirely brown; segment 9 narrowly emarginate, a few short prickles on the posterior margin; genital blotches distinctly dark brown, broadly rounding on segment 5 and rapidly tapering to sharp angle on segment 8; two distinct pustulations in the lateral angles on segment 6.

[157] ♂. Body, length 1·33 mm.; width, ·5 mm.; head, length ·5 mm.; width ·48 mm.; abdomen broadly ovate, last segment flatly rounding, with very long hair in the lateral angles; segments 6—9 entirely chestnut-brown.

Specimens from *Chlorodrepanis virens* (Kahului, Maui Island, and Jao Valley[1], Maui Island).

(3) *Docophorus fuliginosus hawaiiensis* [var. nov.].

Docophorus fuliginosus hawaiiensis Kellogg, New Mallophaga, I. 1896, p. 80, Pl. iii, fig. 2; List of Mallophaga, 1899, p. 47.

Measurements of male, body length 1·6 mm., width ·75 mm., head length ·6 mm., width ·6 mm., abdomen broadly ovate to subcircular, distinctly turbinate, strongly coloured, showing but little light uncoloured median region, segments 1—6 with series of strong pustulations.

Many specimens from *Charadrius dominicus fulvus* (Kahului, Maui Island) and from *Heteractitis incanus* (Hito [? Hilo], Hawaii Island) may be referred to the species *fuliginosus*, but they show well-marked varietal differences.

NIRMUS.

(1) *Nirmus minhaensis* [sp. nov.].

♀. Body length 1·83 mm., width ·46 mm., pale golden brown.

Plate X. fig. 2.

Head, length ·65 mm.; width ·38 mm.; narrowly elongate, conical, with the clypeal margin broadly rounding; its uncoloured clypeal region expanding in front of the suture; seven hairs on the margin of forehead, two of which are longer than others and arise dorsally; antennae with second segment longest, and segment 5 longer than segments 3 or 4; eye not prominent, with one hair, temples with sides nearly parallel, one long pustulated hair in the broadly rounded temporal angle and three short prickles on the margin; occipital margin slightly concave, without hairs or prickles; general colour of the head pale golden brown, clypeal signature pale brown but distinct, narrowing slightly posteriorly; anterior and posterior margins slightly convex; antennal bands broad anteriorly but little darker than general colour of the head, deepening to black-brown at the antennal fossae; ocular blotch distinct, black-brown; temporal borders narrow but well marked until interrupted by the pustulation, broader just below the eye; occipital blotches distinct.

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[1] "Ias Valley" in the original. D. S.

Prothorax short, sides parallel; posterior angle with one long pustulated hair; general colour pale brown with whitish median line and narrow dark lateral bands. Metathorax with broad rounding sides, diverging posteriorly; one long hair in the posterior angle; posterior margin with a long, acute, median angle; lateral submarginal band, widening near the anterior angle and again in front of the posterior angle. Legs pale golden brown without dark markings.

Abdomen narrow, elliptical; broadening rapidly to segment 4; posterior angle distinct, with 1—2 long hairs; broad transverse band of pale brown separated by a distinct uncoloured median line extending to segment 6, bands shining in segments 6 and 7; lateral bands dark golden brown, broader anteriorly; posterior margins of segments uncoloured; last segment broadly rounding with a slight emargination.

One specimen from *Acridotheres tristis* (Hahaina [? Lahaina], Maui Island).

[158] (2) *Nirmus stenozonus* [sp. nov.].

♀. Body, length 2 mm.; width ·4 mm.; long, slender, pale yellow brown with distinct blackish marginal markings on the abdomen.

Plate X. fig. 3.

Head, length ·4 mm.; width ·36 mm.; elongate, conical with a very narrow, slightly convex anterior margin, two short marginal hairs near the front; a long weak hair in front of the trabeculae which reach as far as the second segment of the antennae; antennae with second segment longest, segment 5 longer than segments 3 or 4, colour pale yellow brown; eyes inconspicuous, with a short prickle near the posterior margin; temporal margins flat with one long pustulated hair and a few short prickles; ground colour of head yellow brown with golden brown antennal band, bending sharply in at the antennae; anterior margins separated by an uncoloured clypeus; temples bordered with narrow band of dark chestnut-brown; a pale brown shield-shaped occipital blotch surrounded by a V-shaped uncoloured marking extending from the dark-coloured mandibles to the occipital margin.

Prothorax short with rounding lateral margins; one hair in the rounding posterior angles; pale golden brown lateral borders; metathorax trapezoidal with widely diverging sides (posterior angles extending beyond the lateral margin of the abdomen), a few short prickles and one long hair in the posterior angles, posterior margin slightly rounding on the abdomen; chestnut-brown marginal markings, paling anteriorly after the constriction;

no distinct sternal markings. Legs pale yellow brown, concolorous with the body, with darker marginal markings.

Abdomen very long and slender with subparallel sides; abdominal segments gradually widening to segment 6, segment 7 slightly narrower and abruptly tapering with segment 8; two hairs in the posterior angles; segment 8 broadly rounding with slight emargination; pale yellowish-brown with blackish-brown linear bands on the lateral margins of segments 1—7; last segments without dark markings.

Two females from *Munia nisoria* and *Vestiaria coccinea* (Hilo, Hawaii Island). The specimen is much like *ductilis* but shows distinct abdominal blotches.

(3) *Nirmus diaprepes* [sp. nov.].

♀. Body, length 1·55 mm.; width ·53 mm.; white, with dark brown to black marginal bands, brown median abdominal markings.

Plate X. fig. 4.

Head, length ·46 mm.; width ·4 mm.; conical, front slightly concave, with five marginal hairs placed equidistant in front of the trabeculae, a few dorsal hairs extending beyond the margin; trabeculae large, uncoloured; antennae uncoloured, segment 2 longest, 3 and 4 about equal; segment 5 as long as both segments 3 and 4; eye inconspicuous with short prickle; temporal margins slightly rounding with one, long, weak, pustulated hair in the angle, two short prickles on lateral margin behind the eye; posterior margin straight, with two stiff bristles near the lateral angle; ground colour of the head yellowish-white, clypeus uncoloured, antennal bands rather broader than other body markings, black fading inwardly, distinct interruption in front of the trabeculae; ocular blotch distinct, black, meeting the temporal bands which grow narrow at the temporal angles and disappear on the occipital margin; the mandibles chestnut-brown, a shield-shaped occipital signature chestnut-brown, darker in narrow anterior angle.

[159] Prothorax quadrangular, with flatly rounding sides, posterior angles rounded with one hair; dark brown marginal border; intercoxal lines of sternum showing through. Metathorax with widely diverging sides; posterior angles extending beyond the first segments of the abdomen; a series of long pustulated hairs along the broadly acute posterior margin; dark brown blotch in the anterior angles; black brown blotches in posterior angles, fading inwardly to a narrow brown band remote from the posterior margin which is pale golden brown. Legs palest golden brown, femora and tibiae with dorsal marginal black markings with a blackish-brown annulation near the distal extremity, a few short stiff hairs.

Abdomen elongate ovate, sides subparallel; segments 1 to 4 rapidly widening; lateral angle acute with from one to three long weak hairs; narrow black brown marginal markings on segments 1 to 8; segment 8 with pale brown submarginal band passing in an elongate curve across the segment broadening on the median line;

segment 9 uncoloured, deeply emarginate, with one short prickle and one long hair each side of the emargination; segments 2—8 with a broad median blotch separated from the lateral border by a broad uncoloured band.

♂. Body, length 1·25 mm.; width ·46 mm.; head, length ·38 mm.; width ·38 mm.; last abdominal segment protruding, narrowly rounded with several long hairs each side of the middle of the posterior margin, segment 8 narrow, with small pale blotch near lateral margins, segments 8—9 with broad continuous median blotches; genitalia composed of narrow bars, showing through segments 6—9.

Male and female from *Vestiaria coccinea* (Hilo, Hawaii Island).

(4) *Nirmus orarius hawaiiensis* [var. nov.].

Nirmus orarius hawaiiensis Kellogg, New Mallophaga, I. 1896, p. 104, Pl. v. fig. 5; List of Mallophaga, 1899, p. 55.

♀. Body, length 1·5 mm.; width ·38 mm.; head, length ·25 mm.; width ·26 mm. ♂. Body, length 1·3 mm.; width ·33 mm.; head, length ·4 mm.; width ·26 mm.; head not so elongate as in *orarius*, clypeus not extending so far laterally, colour of head translucent with distinct occipital signature, abdomen with distinctly darker brown transverse bands.

Several specimens from *Charadrius dominicus fulvus* and *Fulica alai* (Kahului, Maui Island) can be referred to this species, but differ in such degree as to make them entitled to varietal rank.

(5) *Nirmus gloriosus emarginatus* [var. nov.].

Nirmus gloriosus emarginatus Kellogg and Kuwana, Mallophaga from Birds of the Galapagos Ids., Proc. Wash. Acad. Sci., vol. IV. 1902, pp. 457—499, fig. 1, Pl. xxix.

♀. Body, length 1·9 mm.; width ·38 mm.; head, length ·43 mm.; width ·26 mm. ♂. Body, length 1·6 mm.; width ·33 mm.; head, length ·41 mm.; width ·25 mm.; clypeus with distinct emargination, general colour paler chestnut-brown.

Several specimens from *Anous stolidus* (Kahului, Maui Island) can be referred to this species but must have a varietal name.

Lipeurus.

(1) *Lipeurus docophoroides minhaensis* [var. nov.].

Lipeurus docophoroides minhaensis Piaget, Les Pediculines, 1895, p. 357, Pl. xxviii. fig. 9; Kellogg, List of Mallophaga, 1899, p. 63.

[160] ♀. Body, length 2 mm.; width 1·05 mm.; head, length ·58 mm.; width ·5 mm.

One female from *Acridotheres tristis* (Lahaina, Maui Island) which shows such a disproportionate width of body when compared with typical specimens of the species that it must be considered the type of a variety.

ONCOPHORUS.

(1) *Oncophorus advena* Kellogg.

Oncophorus advena Kellogg, New Mallophaga, I. 1896, p. 130, Pl. xi. figs. 1—2; List of Mallophaga, 1899, p. 66.

From *Fulica alai* (Kahului, Maui Island), *Vestiaria coccinea* and *Heteractitis incanus* (Hilo, Hawaii Island). This parasite is normal on the coot (*Fulica*), but is a wholly unexpected find on the honey-creeper (*Vestiaria*).

GONIOCOTES.

(1) *Goniocotes chinensis* [sp. nov.].

Goniocotes chinensis ♀. Body, length 2·35 mm.; width ·96 mm.; whole body translucent with dark golden brown marginal markings on thorax and posterior margin of head, but paling distinctly on the abdomen.

Plate X. fig. 5.

Head, length ·65 mm.; width ·85 mm.; front broadly rounding with several short weak hairs on margin in front of the antennae, which are long and pale in colour, the first segment longer than the second and the third and fourth subequal and together about as long as the second segment; eye flatly rounding with one short spine near the posterior angle; temporal margins sharply diverging, meeting the occipital margin in an acute angle, with two long hairs and one short spine on a sharp angular projection of the temporal margin beyond the real angle of the temples.

An acute angle each side of the median angle of the occipital margin, each with a short prickle; ground colour of the head pale translucent yellow with a narrow band of darker yellow on the rounded front. These bands fade slightly inwardly, and in front of the antennae turn in and darken distinctly into golden brown, fading towards the mandibles which are also dark chestnut-brown; distinct chestnut-brown blotch in front of the eye, the temples with distinct yellow marginal bands; occipital margin dark chestnut-brown, fading inwardly.

Prothorax narrow, sides slightly diverging, posterior angles not prominent, with one long weak hair, dark golden brown lateral bands and the sternal markings showing through as broad golden brown bands, bending in and back and meeting in a broad sternal shield on the metathorax narrow, indistinct; a long hair in each lateral angle; dark golden brown lateral bands paling inwardly. Legs pale with slightly darker marginal band and few weak hairs; front pair very short and weak, second pair little stronger.

Abdomen obovate, widening gradually to segment 4 and broadly rounding to the last segment; one to three hairs in the posterior margins, growing longer on the posterior segments; last segment rounding with narrow deep median emargination; a few long and short hairs on the margin; ground colour translucent pale yellow, lateral bands of darker yellow, growing paler after segment 1, resembling somewhat a series of vertebrae, last segment without distinct markings.

From *Turtur chinensis* (Kahului, Maui Island).

COLPOCEPHALUM.

[161] (1) *Colpocephalum kilauensis* [sp. nov.].

Colpocephalum kilauensis ♀. Body, length 1·55 mm.; width ·5 mm.; elongate, pale golden brown with dark chestnut-brown markings on the head and thorax, and paler brown marginal border on the abdomen.

Plate X. fig. 6.

Head, length ·36 mm.; width ·4 mm.; front flatly rounding with a slight median angulation, palpi and antennae barely projecting beyond the head; one short hair each side of the median line, one long stiff hair and one stiff bristle each side of the front (not like *timidum*) on the rounding anterior angle, a single stiff hair just back of a slight lateral depression, and one very long and three shorter hairs and two short prickles on the lateral margin just in front of the ocular depression; eye with a slight but distinct emargination; ocular fringe distinct; temples broad with flatly convex lateral margins, with a few white hairs, and three longer hairs; occipital margin broadly concave, with four hairs pale golden brown with small dark brown ocular blotches and black ocular flecks; pale brown clypeal blotches; dark brown of mandibles showing through the head; temples without marginal markings.

Prothorax with a short spine and long stiff hair in the sharp lateral angles, one long hair on lateral margin; series of hairs on the narrowly rounded posterior margin; ground colour darker brown than head or abdomen and sternal markings showing through. Metathorax with rounding angles, sides slightly diverging and showing a slight emargination where the mesothorax and metathorax have fused; a hair and a stiff bristle and one prickle in the posterior angle; ground colour golden brown, anterior angles bordered with dark brown, lateral margins bordered narrowly with brown; this band leaves the margin and cuts off the posterior angles. Legs the paler brown of body; femora thickened and many stiff hairs.

Abdomen elongate oval; posterior angles of segments not projecting; a few short hairs on the lateral margin, growing longer on the segments 6 and 8; numerous non-pustulated hairs scattered irregularly over the dorsal surface, last segment slightly convex with a series of short hairs along the posterior margin, two rather long hairs on the lateral margin, and one very long hair each side of the median line; body colour pale fuscous, and uncoloured longitudinal line running parallel with the lateral margins on segments 1—8; outside of the line on each segment a dark fuscous blotch, showing darker triangular transverse blotches on segments 1—7; last segment uncoloured, with pale transverse blotches fading inwardly.

Specimens from *Heteractites incanus* (Hilo, Hawaii Island). This species resembles *timidum* closely except in size and a few minor details.

(2) *Colpocephalum epiphanes* [sp. nov.].

Colpocephalum epiphanes ♀. Body, length 2 mm.; width ·63 mm.; long and slender, dark fuscous brown.

Plate X. fig. 7.

Head, length ·36 mm.; width ·5 mm.; front flatly rounded; six hairs on the front; sides of front slightly diverging with seven marginal hairs, the four just in front of the ocular emargination strong and stiff; ocular emargination deep and narrow, with a prominent ocular fringe; eye large with distinct emargination and black ocular fleck; antennae projecting slightly beyond the margin of the head; temples widely projecting, narrowing rapidly posteriorly; three very long hairs, a few shorter hairs and several [162] bristles on the rounding temporal margins; occipital margin broadly concave, bare; pale fuscous with dark brown clypeal blotches barely separated from the dark ocular blotches; temples narrowly bordered with dark brown deepening to black on the broad occipital band, fading anteriorly to meet the ocular blotches, mandibles dark, showing through the head.

Prothorax narrow, short, a spine and long hair in each obtuse lateral angle; one long hair on the lateral margin and a third long hair in the latero-posterior angles; posterior margin broadly convex; colour dark fuscous with narrow lateral line of dark brown. Latero-posterior angles with dark brown blotch; two small dark triangular dorsal blotches each side of the median line (sternal markings). Metathorax bell-shaped, a few prickles on the lateral margins; posterior angle with four short spines and two long stiff hairs; colour dark fuscous deepening in the posterior angles; a distinct pale suture between the meso- and metathorax, with a slight lateral angular emargination and an uncoloured median line across the mesothorax. Sternal marking consisting of distinct shield-shaped blotch of clear brown, the lateral angles being dark brown on the prothorax; a broad metathoracic blotch with dark intercoxal borders. Legs long, fore femora greatly thickened, some stiff hairs; concolorous with head, narrow dark marginal markings.

Abdomen elongate oval with a series of short prickles along the lateral margins of the segments; after segment 5 one or two hairs in the posterior angles of segments, these angles not extending enough to break the regular elliptical margin of the abdomen;

colour dark fuscous with black lateral border, broader on the first segments of abdomen, diminishing to a narrow line on the anterior half of the last segment; a pale longitudinal line running parallel with the lateral margin; each segment with a broad median transverse band separated by a pale line from the other segments; dorsal surface thickly scattered with short hairs; last segment narrowly rounding with long hairs on the lateral margin and fringe of fine short hairs along the posterior margin; a pale uncoloured line on the posterior margin with large pustulations in the anterior ends of clear region.

Three females taken from *Anous stolidus* (Kahului, Maui Island).

(3) *Colpocephalum brachysomum* [sp. nov.].

Colpocephalum brachysomum ♀. Body, length 1·33 mm.; width ·7 mm.; short, broad, pale fulvous with dark brown to black markings on head.

Plate X. fig. 8.

Head, length ·36 mm.; width ·6 mm.; front flatly rounding, a short weak hair each side of the median line, a second weak hair on the lateral margin of the front; two long and two short hairs on the lateral angle in front of the ocular emargination; antennae projecting beyond the margin by its last segment; eye large, distinctly divided, the larger anterior portion filling the angle of the ocular emargination, while the posterior portion lies apparently on a ridge which extends across the temples, a distinct black fleck in the larger portion of the eye; few stiff hairs in the ocular fringe, growing more irregular in length on the anterior portion of the prominent, rounding temples, one of these hairs very long, a few shorter hairs on the posterior margin; occipital margin weakly concave, with a long hair and short spine each side of the median line; colour pale yellowish-brown; large ocular dark chestnut-brown blotches extending laterally by the black ocular fleck; dark brown clypeal blotches extending inwardly to the dark mandibles; occipital band distinct, widening into deep ruddy brown angular occipital blotches, which fade anteriorly.

[163] Prothorax broad anteriorly, angles with one long hair and a short spine; a short spine and one long hair on the broadly rounding lateral margin; colour yellow brown with no distinct markings. Metathorax narrow with abruptly diverging sides; a series of short stiff spines along the lateral margin. A number of long hairs in the rounding posterior angles; posterior margin straight with a series of long hairs; pale brown with darker brown angular lateral blotches. Legs robust, pale brown with darker marginal bands; a number of short stiff hairs on the outer margin of the tibia.

Abdomen broadly elliptical, the lateral margins broken by slightly projecting posterior angles of the segments; many long and short stiff hairs along the lateral margins and a series of stiff hairs along the posterior margins of each segment, the hairs longer on the posterior segments; ground colour pale yellow brown, growing paler posteriorly; darker brown lateral bands on all segments save the last, these lateral bands interrupted interiorly by a pale line parallel with the lateral margins, last segment broadly rounded, pale yellow to uncoloured posterior margin; a few long weak hairs on the margin and a series of short weak submarginal hairs.

Specimens from *Asio accipitirinus* (Jao Valley, Maui Island), and from *Caradrius dominicus fulvus* (Kahului, Maui Island).

(4) *Colpocephalum conspicuum* [sp. nov.].

Colpocephalum conspicuum ♀. Body, length 1·28 mm.; width ·55 mm.; weakly coloured, pale fuscous with conspicuous dark golden brown markings on the head, thorax and abdomen.

Plate X. fig. 9.

Head, length ·25 mm.; width ·4 mm.; front with slight median angle, one short weak hair each side of the front; a slight angle in front of the palpi; two long stiff hairs on the slight elevation in front of the ocular emargination, three stiff hairs from the ventral surface extending beyond the margin; eye large, slightly flattened with a black ocular blotch; ocular fringe distinct with few stiff hairs; temples broad with flatly convex lateral margins bearing several hairs of various lengths, two being pustulated; occipital margins broadly concave with one long hair, one short hair and one prickle each side of the median line, ground colour pale fuscous with narrow dark brown ocular border, meeting the paler clypeal blotches; mandibles dark brown; a pale brown rectangular signature showing through the head.

Prothorax; anterior margin broadly convex; antero-lateral angles obtuse, a strong angle on the lateral margin with one strong hair; three long hairs on each lateral half of the rounded posterior margin; ground colour darker fuscous than head, dark brown sternal markings showing through. Metathorax pentagonal, the mesothorax and metathorax distinctly separated; sides of the metathorax diverging, one long hair and three spines in the posterior angle, posterior margin with a series of long hairs; colour dark fuscous on the prothorax, darker on the mesothorax, dark chitinous band of coxae showing through as a marginal border of the anterior angles; sternal markings dark intercoxal, lines consisting of a distinct wedge-shaped marking on the prosternum, pale fuscous bordered posteriorly with a narrow dark band, and an indefinite blotch on the metasternum tapering to a dark acute posterior angle. Legs concolorous with the body with small brown markings.

Abdomen elongate, elliptical, broadest on segment 5; posterior angles of segments slightly extending each with one long hair and a spine in the angle; a series of irregular hairs on the posterior margin of segments, growing thinner medially; last segment abruptly narrower than segment 8, posterior margin rounding with a fringe of fine
[164] uncoloured hairs; pale fuscous with distinctly darker lateral bands darker on the posterior and inner margin; a slight suggestion of transverse bands on segments 3–6.

♂. Body, length 1·13 mm.; width ·41 mm.; darker colouring of abdomen, more dorsal and ventral hairs, segment 8 longer than segments 3—7; a distinct uncoloured line in the posterior margin of segment 7; genitalia strongly chitinized, conspicuous, extending through segments 2—9; last segment rounding with two long hairs and several short hairs on the margin.

Many specimens from *Carpodacus mexicanus obscurus* (Kahului and Pau (?) Olai, Maui Island).

(5) *Colpocephalum discrepans* [sp. nov.].

Colpocephalum discrepans ♀. Body, length 1·21 mm.; width ·68 mm.; golden brown with dark chestnut ocular blotches, occipital bands and darker lateral bands on the abdomen; unusually short and rounded for a *Colpocephalum*.

Plate X. fig. 10.

Head, length ·38 mm.; width ·58 mm.; front flatly rounded, with a short hair each side of the median line; a few on the margin in front of the antennae which extend beyond the head by the full length of the last segment; one very long hair and two shorter ones in front of the ocular emargination; emargination deep and acutely angular; eye large, nearly divided, with a conspicuous black fleck in the larger anterior part; ocular fringe distinct and with few graduated hairs; temples gradually widening to the rounding posterior angles; many hairs of irregular length on the anterior half of the temples; two very long and a few short hairs and spines in the posterior angle; occipital margin concave with a long hair and a short spine each side of the median line; colour of the head golden brown, with large ocular blotches and triangular occipital blotches of dark blackish-brown connected by a band of paler brown; an even band of dark brown connects the triangular occipital blotches; a dark brown blotch each side of the clypeus in front of the antennae connected with the dark mandibles and the ocular blotches by a pale brown blotch.

Prothorax short and strong, anterior angles with a long hair and short spine in the angle; pustulated hairs along the rounding lateral posterior margin; same golden brown colour as head, transverse chitin band distinct with a short dorsal hair at the outer ends of bar; dark chitin bars extending back from the anterior margin across the prothorax. Metathorax short, appearing like the first segment of the abdomen; sides rapidly diverging; two short spines and a long hair in the posterior angles; a series of strong pustulated hairs along the straight posterior margin; median portion of the segment golden brown, the posterior angles with a broad triangular band of darker brown. Legs pale golden brown with darker blotches at the joints and a narrow marginal band of dark brown.

Abdomen broadly ovate, short hairs and spines on the lateral margins and a long hair in the posterior angle of each segment; a series of long pustulated hairs along the posterior margin of the segments; last segment broad, rounded with a few strong hairs in the margin. Colour dark golden brown with darker brown lateral blotches.

♂. Body, length 1 mm.; width ·1 mm.; head, length ·33 mm.; width ·55 mm.; shorter than the female; abdomen with segments 5—7 narrowed distinctly in the middle; genitalia extending forward to segment 1 (seeming even to go into the metathorax).

[165] A single specimen from *Carpodacus mexicanus obscurus* and from *Anous stolidus* (Kahului, Maui Island).

MENOPON.

(1) *Menopon hawaiiensis* [sp. nov.].

♀. Body, length 1 mm.; width ·6 mm.; being thus unusually broad and short for the *Menopon* type; fuscous, translucent, with no well defined markings except the black ocular flecks and the intercoxal lines which show through the body.

Plate X. fig. 11.

Head, length ·21 mm.; width ·51 mm.; broad and short; a slight angulation in front, on each side of which a very short hair and one longer hair; palpi with a long terminal segment extending slightly beyond the rounding front; two long strong hairs and two shorter weaker hairs on the rounding angle in front of the ocular emargination; the emargination is slight but distinct; eye large, nearly divided by a large ocular fleck; ocular fringe with few spines; temples projecting narrowly, with four hairs on the rounding margin, two of which are very long, a few short prickles and a few shorter hairs arising on the dorsal surface; occipital margin broadly concave, a long hair on each side of the median line; colour of head pale fuscous, a darker band across the front deepening where the palpi and mandibles show through the head, ocular band darkening anteriorly; occipital margin narrowly bordered with pale brown; on the under side of the head there are two strongly chitinized backward-projecting, pointed processes, arising from the labium, and these show through the head giving the impression of dark occipital bands.

Prothorax short, with a very long hair and two prickles in the obtuse anterior angle, a series of four long pustulated hairs and four prickles on each side of the rounding lateral and posterior margin; the transverse chitin bar distinctly pale brown, intercoxal lines showing through distinctly. Mesothorax narrow with posterior angles sharp, with a long hair and two spines in the angle, chitinous bars extending longitudinally from the anterior angles across the segment. Metathorax narrow, appearing like the first abdominal segment, a dark chitinous bar extending from the anterior lateral margin of the mesothorax back across the metathorax cutting off the posterior angles; a series of short hairs along the posterior margin; sternal markings consisting of small triangular median blotch with narrow chitinous bars arising laterally and extending forward and outward to the anterior angles of the prothorax; dark curving intercoxal bands on the mesothorax; legs translucent, fuscous with distinct brown margins.

Abdomen broadly ovate, posterior angles obtuse and slightly projecting with a short spine and from one to two long hairs in the angle; a series of hairs along the posterior margin of each segment; entire abdomen a darker fuscous than the head or thorax, a narrow transverse band of darker brown across each segment; last segment broadly rounded with a series of hairs along the posterior margin.

One female from *Chlorodrepanis virens* (Iao Valley, Maui Island).

(2) *Menopon cyrtostigmum* [sp. nov.].

♂. Body, length 1 mm.; width ·46 mm.; short, broad; golden brown, darker on abdomen, black brown ocular bands with many stiff spines on body.

Plate X. fig. 12.

Head, length ·26 mm.; width ·4 mm.; front broadly and evenly rounding with two short hairs near the median line, a weak hair in front of the slightly projecting palpi; one short hair at the suture; two long and one shorter pustulated hairs in front [166] of the distinct ocular emargination; eye inconspicuous but with a distinct black fleck; ocular fringe distinct, composed of stiff curving hairs which extend slightly on the temporal margin; temples rounding, narrowing posteriorly with five long pustulated hairs and two short spines on the margin; occipital margin broadly concave with one short hair near the outer angle; colour of the head pale fuscous with narrow dark chestnut-brown ocular blotches and black ocular flecks; dark markings on front of head showing through from palpi and mandibles; occipital margin with narrow band of dark chestnut-brown, darkening slightly at the occipital blotches.

Prothorax short, anterior angles projecting but little with a long hair and two short prickles in each; a series of six hairs on the broadly rounding posterior margin; colour darker brown than the head, wedge-shaped blotch and dark intercoxal bars showing through distinctly from the sternum. Mesothorax distinctly separate from the metathorax by a series of short spines. Metathorax long, little broader than the prothorax; side slightly divergent with one short spine on the lateral margin; three short spines and one long hair in each posterior angle; a series of weak hairs on the posterior margin; colour chestnut-brown, lighter than the prothorax, darker in the anterior angles, and a narrow band along the lateral margins, legs robust, of the palest fuscous colour of the head, with darker band and semi-annular rings; many short stiff hairs on the front of the femora and tibia.

Abdomen broadly elliptical; small as compared with the large head and thorax; a few short stiff spines in the posterior angle of the segments, with a long hair in angles of segments 2—8. A series of long stiff hairs on the posterior margin of each segment;

each segment with a pale transverse band, darkening on the posterior margin, and the lateral margin interrupted by a narrow uncoloured submarginal band parallel with the lateral margins of the abdomen; last segment broadly rounding, without dark markings, with two long hairs and a short spine on the lateral margin; genitalia dark brown, extending forward into segment 5 and showing through the body distinctly.

♀. Body, length 1·16 mm.; width ·26 mm.; head, length ·33 mm.; width ·38 mm.; much paler in colour than male, only showing dark markings on the head.

Specimens from *Vestiaria coccinea*, *Himatione sanguinea* (Hilo, Hawaii Island) and *Chlorodrepanis virens* (Iao Valley, Maui Island).

(3) *Menopon hilensis* [sp. nov.].

♀. Body, length ·91 mm.; width ·48 mm.; short, broad, pale fuscous without well-defined markings.

Plate X. fig. 13.

Head, length ·21 mm.; width ·4 mm.; front broadly rounding with two short hairs each side of the front; one very long and one shorter hair in front of the ocular emargination; ocular emargination distinct but shallow; eye large, quite filling the angle, distinctly cleft with a large ocular fleck and two stiff prickles, protruding with one very long hair and two shorter hairs, several spines and prickles on the rounding margin; one long and two short spines on the dorsal surface each side of occipital margin, which is slightly concave with a spine and one long hair each end side of the median line; a second long hair on the outer angle of the occipital margin and the temple; colour of head pale fuscous, narrow dark band on the front broadening into a blotch each side of the clypeus; with dark black-brown ocular bands, and narrow triangular occipital blotches meeting in the median line and extending along the posterior margin of the temples.

[167] Prothorax wide, anterior angles round with a short spine; six long pustulated hairs and a spine on the rounding lateral posterior margin; a dorsal prickle at each end of the distinct transverse chitin bar; colour fuscous. Metathorax with slightly diverging sides with three strong marginal spines, two long hairs and prickles in the posterior angles; a series of weak hairs and one spine along the posterior margin; colour dull fuscous. Legs concolorous with the body, with darker marginal markings.

Abdomen broadly ovate, with a long hair, a shorter hair and a prickle in the posterior angle of the segments; a series of weak hairs along the posterior margin; last segment narrow, with a series of hairs on the posterior margin which has a slight median angulation; colour fuscous, slightly darker on the posterior margin of the segment, a pale band on the posterior margin of segment 6, segment 7 deeper fuscous than other segments.

One specimen from *Vestiaria coccinea* (Hilo, Hawaii Island).

(4) *Menopon invadens* [sp. nov.].

♀. Body, length 1·75 mm.; width ·66 mm.; pale, clear, yellowish-brown, slightly darker thorax, indistinct lateral bands on the abdomen.

Plate X. fig. 14.

Head, length ·35 mm.; width ·53 mm.; front flatly convex, with two short stiff hairs at the median line; one long and one shorter marginal hairs on the angle in front of the antennae; two long and two shorter hairs on the distinct swelling in front of the ocular emargination; eye large, distinctly emarginate with a large black ocular fleck; a long stiff hair on the dorsal surface near the margin; ocular fringe distinct, composed of a few stiff curving hairs; temples rounding narrowly but without angles; three very long pustulated hairs, two shorter hairs and a few short prickles on the margin; two long pustulated hairs on the occipital margin; ground colour clear yellowish-brown with darker brown blotches at base of the antennae; dark brown mandibles shining through the head; a narrow dark brown ocular band, widening anteriorly, and a narrow occipital band of dark brown.

Prothorax short; anterior angles with two spines and one long hair; posterior margin broadly rounding with two long hairs near the lateral margin and two long hairs each side of the median line; whole segment darker brown than the head, with a distinct transverse chitin bar. Metathorax and mesothorax long, being separated by a distinct suture, mesothorax distinctly darker brown than the metathorax, lateral margins diverging with few short spines and one long hair in its posterior angles; posterior margin straight with four long marginal hairs; dark intercoxal chitin bar showing through. Legs large, weakly coloured, translucent dorsal marginal bands on femora and tibiae; anterior coxae with bluntly triangular black blotches; many short spines and a few long hairs.

Abdomen elongate, elliptical; a series of short stiff spines and one to two long weak hairs in the lateral angles and a series of long hairs on the posterior margins of each segment; segments 7 and 8 with two long hairs in the posterior angles; last segment with two long hairs each side of the posterior margin, ground colour pale, clear yellowish-brown; indistinct lateral band growing darker from segment 2 to segment 7; narrow, pale brown transverse bands; many scattered hairs on the ventral surface and groups of strong spines, besides the series of stiff spines near the lateral angles.

Specimens from *Acridotheres tristis* (Lahaina, Maui Island and Kahului, Maui Island), and *Turtur chinensis* (Kahului, Maui Island).

[168] LIST OF HOSTS, WITH PARASITES.

ANOUS STOLIDUS.

Nirmus gloriosus emarginatus Kellogg & Chapman.
Colpocephalum epiphanes Kellogg & Chapman.
Colpocephalum discrepans Kellogg & Chapman.

FULICA ALAI.
Nirmus orarius hawaiiensis Kellogg & Chapman.
Oncophorus advena Kellogg.

HETERACTITIS INCANUS.
Docophorus fuliginosus hawaiiensis Kellogg & Chapman.
Oncophorus advena Kellogg.
Colpocephalum kilauensis Kellogg & Chapman.

CHARADRIUS DOMINICUS FULVUS.
Docophorus fuliginosus hawaiiensis Kellogg & Chapman.
Nirmus orarius hawaiiensis Kellogg & Chapman.
Colpocephalum brachysomum Kellogg & Chapman.

TURTUR CHINENSIS.
Goniocotes chinensis Kellogg & Chapman.
Menopon invadens Kellogg & Chapman.

ASIO ACCIPITIRINUS.
Colpocephalum brachysomum Kellogg & Chapman.

ACRIDOTHERES TRISTIS.
Nirmus minhaensis Kellogg & Chapman.
Lipeurus docophoroides minhaensis Kellogg & Chapman.
Menopon invadens Kellogg & Chapman.

CARPODACUS MEXICANUS OBSCURUS.
Docophorus communis Nitzsch.
Colpocephalum discrepans Kellogg & Chapman.
Colpocephalum conspicuum Kellogg & Chapman.

MUNIA NISORIA.
Docophorus communis Nitzsch.
Nirmus stenozonus Kellogg & Chapman.

VESTIARIA COCCINEA.
Nirmus stenozonus Kellogg & Chapman.
Nirmus diaprepes Kellogg & Chapman.
Oncophorus advena Kellogg.
Menopon cyrtostigmum Kellogg & Chapman.
Menopon hilensis Kellogg & Chapman.

HIMATIONE SANGUINEA.
Menopon cyrtostigmum Kellogg & Chapman.

CHLORODREPANIS VIRENS.
Docophorus macgregori Kellogg & Chapman.
Menopon cyrtostigmum Kellogg & Chapman.
Menopon hawaiiensis Kellogg & Chapman.

MYRIOPODA.

H. S. Barber,
U. S. National Museum,
Washington, D. C.

By Filippo Silvestri (Bevagna, Umbria).

(Plates XI. and XII.)

From the Hawaiian Islands until now there are known only the following species of Myriopoda:

Chilopoda. *Scutigera straba* Wood, Journ. Ac. Nat. Sci. Philadelphia (2), v., p. 11, Oahu.—*Lithobius Xanti* Wood, Ibidem, p. 15, Sandwich Islands[1].—*L. rugosus* Meinert, Naturh. Tidskr. (3), VIII., p. 306, Oahu.—*L. asperatus* L. Koch, Verh. zool.-bot. Ges. Wien, XXVII., p. 788, Oahu[2].—*Scolopendra repens* Wood, Op. cit., p. 31, Oahu.—*Opisthomega insulare* Meinert, Amer. Philos. Soc. XXXIII. (1885), p. 209, Sandwich Islands.—*Lamnonix spissus* Wood, Op. cit., p. 43, Oahu.—*Scolopendra subspinipes* Leach, Trans. Linn. Soc. London, XI., p. 383, Honolulu[3].

Diplopoda. *Orthomorpha gracilis*, C. L. Koch, Syst. d. Myr., p. 142, Hilo and Honolulu[4], Kilauea, Molokai, Kalae ?.—*Orthomorpha coarctata*, Humb. et Sauss., Mém. Mex. Myr., p. 39, fig. 18, Kauai, Lihué[5].—?*Iulus anguinus* Karsch, Sitz.-Ber. Ges. Naturf. Freunde Berlin, 1880, p. 7, Hawaii.

In the collection of Hawaiian Myriopoda that I have had the pleasure of studying through the kindness of Dr D. Sharp, I have recognised 4 species of Chilopoda and 16 of Diplopoda, of which only the *Lamnonyx spissus* and *Orthomorpha gracilis* were recorded by previous authors; of the other species one, *Diploiulus luscus* (Mein.), is an european species imported into the Hawaiian Islands, the others are all new to science; they are: Chilopoda: *Lithobius hawaiiensis*, *Lamyctes fulvicornis* Mein. var. *hawaiiensis*, *L. heterotarsus*; Diplopoda: *Polyxenus hawaiiensis*, *Aporodesminus* (gen. nov.) *wallacei*, *Dimerogonus aveburyi*, *D. sharpi*, *D. shipley*, *D. carpenteri*, *D. beddardi*, *D. pococki*, *D. sedgwicki*, *D. sinclairi*, *D. lankesteri*, *D. harmeri*, *D. perkinsi*, *D. koebelii*.

All the Chilopoda here recorded belong to cosmopolitan genera, but the *Lamyctes heterotarsus* is interesting for the very peculiar structure of the tarsus in the last ambulatory legs.

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[1] Cf. Stuxberg, A., Oefv. Vet. Ak. Forh. 1875, N. 3, p. 10.

[2] Cf. Attems, C., Zool. Jahrb. XVIII. p. 92.

[3] Cf. Attems, C., op. cit. p. 81.

[4] Cf. Pocock, Ann. Nat. Hist. (6) XI. p. 130.

[5] Cf. Attems, Zool. Jahrb. XVIII. p. 82.

Of the Diplopoda, *Polyxenus* is a genus that is represented in various parts of the world; *Aporodesminus* is new to science, and its relationship is not clear because the members of the family Cryptodesmidae and its allies are very little known. The most interesting genus of the Hawaiian Islands is *Dimerogonus*, represented by 12 species. Of this genus there are at present known only 4 species, from Australia and New Zealand, and one from Chile[1]. Therefore the discovery of several species of *Dimerogonus* in the Hawaiian Islands is very interesting, as corroborating the opinion of an Australian origin for the Hawaiian fauna. Moreover, the presence of species of the same genus in New Zealand and Chile corroborates the theory of the existence, in preceding epochs, of an antarctic region between these countries.

It is worthy of note that each of the Hawaiian species of *Dimerogonus* presents secondary sexual characters in the male; such as the great development of the collum and the inferior protuberances of some of the joints in the legs of pairs 4–7; sexual characters unknown in the *Dimerogonus* of New Zealand and Chile.

Chilopoda.

LITHOBIOMORPHA.

Fam. LITHOBIIDAE.

Lithobius Leach.

(1) *Lithobius hawaiiensis*, sp. nov.

Ochroleucus. Caput. Lamina cephalica parum latior quam longior. Oculi ocellis 17 in seriebus 5 longitudinalibus dispositis (2, 4, 5, 4, 2). Antennae 29-articulatae sat dense et breviter setosae, articulis 3—16 longioribus quam latioribus 17—28 inter sese inaequalibus, articulo ultimo quam penultimus duplo longiore. Truncus. Laminae dorsales subnudae, IV, VI, IX, XI, XIII, XV angulis posticis rotundatis, margine postico parum sinuato, V, VII, VIII, X, XII, XIV angulis posticis subrectis, XVI margine postico vix sinuato, angulis posticis rotundatis. Laminae ventrales sparsim et brevissime setosae, XVI angulis posticis parum rotundatis.

Pedum maxillarium subcoxae dentibus 2 + 2 sat parvis armatae. Pedes ambulatorii sparsim setosi, paris primi calcaribus $\frac{0\,0\,2\,3\,1}{0\,0\,1\,2\,1}$, paris ultimi $\frac{1\,0\,3\,0\,0}{0\,1\,3\,3\,1}$ subcoxae lateribus calcare armatis, ungue unguicola laterali aucto.

Pori subcoxales 5, 6, 5, 5, rotundi, uniseriati, sat parvi.

Genitalium femineorum unguis brevis, trilobus, calcarium 3 + 2.

Long. corp. 20, lat. 2, 5; long. antenn. 7, long. ped. paris ultimi 8, 5.

Hab. Kauai, Makaveli, 3000 feet, 1897 (Perkins).

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[1] *Dimerogonus chilensis* Silv. = *Iulomorpha chilensis* Silv. (I. 1903) = *Nannolene nigrescens* Attems (III. 1903).

♂ Fulvescens medio dorso et dorsi lateribus fulvo-castaneis.

Oculi ocellis 21 compositi, 5-seriatis (3, 6, 5, 4, 3). Antennae 27-articulatae, articulis elongatis, longioribus quam latioribus.

Pori subcoxales 3, 4, 5, 4.

Long. corp. 16, lat. 2, 5; long. antenn. 9.

Hab. Kauai, Koholuamano (Perkins, 1895).

Fam. HENICOPIDAE.

Lamyctes Meinert.

(1) *Lamyctes fulvicornis* Mein., var. *hawaiiensis*, nov.

Fulvescens. Caput. Lamina cephalica aeque longa atque lata. Antennae breves, 24-articulatae, articulis brevibus, sat dense et breviter setosis, articulo ultimo quam penultimus parum longiore.

Truncus. Laminae dorsales breviter et sparsissime setosae, IV, VI, IX, XI, XIII, XV angulis posticis rotundatis et margine postico paullulum sinuato, XVI margine postico sat profunde sinuato, ceterae angulis posticis paullulum rotundatis. Laminae ventrales sparsim et breviter setosae, XVI subtrapezoidea.

Pedum maxillarium subcoxae dentibus 2 + 2 sat robustis armatae, utrimque oblique excisae, inter sese antice sat profunde distinctae, et lateraliter dente minimo auctae. Pedes ambulatorii articulis 3—5 infra setis nonnullis robustis, subspiniformibus, armatis et setis sat longis, minus robustis, auctis, tarso sat dense et sat breviter setoso, parium 1—12 tibia in parte apicali anteriore acute producta, paris 15 articulo 3° breviter, sed sat dense et sat robuste setoso, articulo quarto minus robuste setoso, articulis 5—6 setis subtilissimis sat numerosis praedito. Pori subcoxales rotundi 3, 3, 3, 2, in juvene 2, 2, 2, 2.

Genitalium femineorum unguis integer, calcarium paria duo.

Long. corp. 11, lat. 1, long. antenn. 2, long. ped. paris ultimi 4.

Hab. Hawaii; Kona, 4000 feet (Perkins, VIII. 1892).

I have considered the above described specimens of *Lamyctes* as a variety of the european *Lamyctes fulvicornis* Mein., known also from North America, because of the presence of only two well-developed teeth on the maxillary legs (first appendages of the truncus).

(2) *Lamyctes heterotarsus*, sp. nov.

Among the Henicopidae of Kona I have found a male that differs from the above described *Lamyctes* in the number of the antennal segments, the subcoxal pores, and especially in the form of the last tarsus, which is so peculiar, that perhaps it is at least of subgeneric importance, but now in possession of a single example I think it prudent to describe them only as a new species of *Lamyctes* with the following characters:

♂ Fulvo-castaneus. Caput. Lamina cephalica aeque longe atque lata. Antennae 19-articulatae.

Truncus. Laminae dorsales IV, VI, IX, XI, XIII, XV angulis posticis rotundatis, XVI margine postico (Pl. XI. fig. 3) sat profunde sinuato, laminae dorsales ceterae angulis posticis subrectis. Lamina ventralis XVI angulis posticis rotundatis.

Pedum maxillarium subcoxae dentibus 2 + 2 armatae. Pedes ambulatorii hirtelli, tarso pedum parium 1—12, ut in speciebus ceteris generis Lamyctes, integro, praetarso unguibus tribus constituto, tibiae angulo apicali anteriore acute producto, paris 15 articulo secundo tarsali (fig. 4) parum distincte plurisegmentato, quam articulus primus tarsalis c. 1/3 breviore. Pori subcoxales 2, 2, 2, 1.

HAB. Hawaii; Kona (Perkins).

GEOPHILOMORPHA.

Fam. GEOPHILIDAE.

LAMNONYX Cook.

(1) *Lamnonyx spissus*, Wood.

Mecistocephalus, Wood, Journ. Ac. nat. Sci. Philadelphia (2) V. p. 43, Haase, Abhand. Mus. Dresden I. N. 5, p. 101.

Caput et trunci segmentum primum fulva, ceterum corpus ferrugineum. Corpus postice attenuatum. Caput. Lamina cephalica (Pl. XI. fig. 5) grosse et sat dense punctata, postice quam antice angustior, $\frac{1}{3}$ longior quam latior, pedum maxillarium marginem internum tantum obtegens. Antennae ad basim crassiusculae. Palpi maxillae paris secundi articulo penultimo setis sat longis, numerosis instructo, articulo ultimo unguem parvum, integrum formante.

Truncus. Lamina basalis, parva, trapezoidea. Laminae dorsales parum rugulosae. Laminae ventrales poris nullis praeditae, mediae aliquantum longe a margine anteriore usque ad posteriorem profunde sulcatae. Lamina ventralis praegenitalis subtrapezoidea.

Pedes maxillares grosse punctati, flexi marginem frontalem spatio maiore superantes, subcoxis inermibus, articulo secundo dentibus duobus sat robustis, rotundatis armato, articulis 3—4 (fig. 6 III.—IV.) dente singulo parvo, ungue magno ad basim dente perparvo aucto. Pedes ambulatorii primi paris quam ceteri valde breviores, paris ultimi (fig. 7) attenuati quam praecedentes subtiliores et parum longiores, ungue terminali nullo, subcoxis sat inflatis, poris rotundis sat numerosis instructis.

Pori anales duo magni.

Pedum paria 45.

Long. corp. 70; lat. corporis antice 2, 5.

Hab. Maui, Haleakala, 5000 feet (Perkins).—Molokai, Kau.—Hawaii.—Kauai, Halemanu.

This species described by Wood from "Ohau" were found also in Burma and Sumatra.

Diplopoda.

PSELAPHOGNATHA.

Fam. POLYXENIDAE.

Polyxenus Latr.

(1) *Polyxenus hawaiiensis*, sp. nov.

Albus, setis pallide cinereis. Caput. Oculi sat magni prominuli, ocellis c. 8 compositi. Antennae (Pl. XI. fig. 8) breves, articulo sexto quam ceteri crassiore et longiore, articulo octavo brevissimo. Setae sensitivae organi Tomösvary (fig. 9) basi (*a*) cylindrica compositae et flagello (*b*) attenuato.

Truncus. Tergitum singulum (fig. 10) serie postica (*a*) setarum serratarum instructum et penicillo (*b*) laterali setarum sat brevi aucto. Penicillus caudalis (*c*) sat magnus. Setae tergales (fig. 11) crassae, subtetragonae, serratae. Setae penicilli caudalis (fig. 12) scapo minute serrato apice appendiculis 2—4 (*a*) instructo.

Pedes breves praetarso (fig. 13) ungue sat parvo (*u*) et lamina (*b*) quam unguis parum longiore, nec non processu supero subcylindrico (*a*) quam unguis fere duplo breviore et seta infera (*s*) composito.

Long. corp. 4; lat. 1, 2; long. antenn. 0, 5; long. penicilli caudalis 0, 5.

Hab. Oahu, Kaala 2000 feet (Perkins, III. 1892).

MEROCHETA.

Fam. CRYPTODESMIDAE.

Aporodesminus, gen. nov.

Trunci segmenta (praeter caput, collum et valvulas anales) 19.

Caput omnino a collo obtectum. Antennae (Pl. XI. fig. 14) articulo 5° quam ceteri crassiore et longiore, articulo 7° quam sextus fere duplo breviore, articulis 5—6 in parte antica superiori penicillo (*a*) setarum brevium, crassarum auctis.

Collum (fig. 15) spatio magno caput antice et lateraliter superans.

Truncus dorso convexo, metazonis tuberculis, longitudinaliter seriatis, auctis. Carinae laterales sat latae, subrectangulares, omnes margine laterali parum distincte trilobato, poris repugnatoriis destitutae. Metazona segmenti XVIII (fig. 16) postice media aliquantum tuberculorum instar producta et caudam partim obtegens. Cauda postice attenuata triangularis, apice truncato setis consuetis 4 instructo, super et utrimque setis nonnullis instructa.

♂ Organum copulativum (fig. 17) articulis duobus constitutum, quorum alter basalis, latus aliquantum excavatus, partem basalem articuli secundi obtegens, articulus secundus hasta constitutus et lamina laterali.

(1) *Aporodesminus wallacei*, sp. nov.

♀ Terreus praesertim granorum terrae causa ad dorsum adherentium, capite, ventre pedibusque pallide umbrinis.

Caput pilis minimis vestitum. Antennae (Pl. XI. fig. 14) breves, pilis brevioribus vestitae.

Collum (fig. 15) in parte supera postica tuberculis rotundatis sat parvis, 4—5 seriatis auctum, margine antico latissime rotundato, vix distincte 16-lobato.

Trunci metazonae (fig. 15) seriebus duabus submedianis tuberculorum rotundatorum 3 auctae, nec non tuberculis nonnullis sublateralibus. Carinae extrorsum et aliquantum deorsum vergentes, subrectangulares, margine laterali vix distincte trilobato, marginibus antico et postico integris. Carinae partis posterioris corporis et praesertim segmenti XVIII (fig. 16) quam ceterae aliquantum minus latae, sed longiores et retrorsum vergentes. Segmentum XVIII metazona postice tuberculis duobus sat longis, medianis aucta caudam maxima pro parte obtegente. Cauda attenuata, triangularis, apice truncato, valvulas anales parum superans. Lamina infraanalis subtriangularis postice parum rotundata setis duabus instructa. Valvulae anales haud convexae, limbatae, setis quatuor instructae.

Sterna parva.

Pedes breves tenues, lateraliter extensi, marginem lateralem carinarum vix superantes, articulo primo parvo, articulis 2—3 longitudine inter sese subaequalibus, articulo 4 brevissimo quam quintus aliquantum breviore, articulo 6 attenuato, quam quintus fere duplo longiore, ungue terminali acuto, robusto, simplici.

Long. corp. 4, 2 ; lat. 1 ; long. pedum 0, 5.

♂ Organum copulativum (fig. 17) articulo primo (1) crasso, aliquantum infra concavo, hasta (2) quam lamina laterali (3) margine infero dentato, aliquantum longiore et apice pilis pluribus aucto.

HAB. Hawaii, Kona, 2000 feet (Perkins IX. 1892).—Oahu, ? Niuanu Valley (Perkins X. 1892). Named in honour of Alfred Russel Wallace.

Fam. STRONGYLOSOMATIDAE.

ORTHOMORPHA Bollman.

(1) *Orthomorpha gracilis*, C. L. Koch.

HAB. Maui, Haleakala, 4000—5000 feet.—Hawaii, Kaua, 4000 feet.—Oahu, Honolulu (Perkins). This is now a cosmopolitan species, introduced everywhere by man.

DIPLOCHETA.

Subordo *CAMBALOIDEA.*

Fam. CAMBALIDAE.

Corpus elongatum, teres Antennae articulo sexto quam ceteri paullulum vel sat crassiore, articulo septimo quam sextus valde breviore, articulo octavo minimo, articulis 5—6 in parte apicali anteriore penicillo setarum brevium, crassarum auctis. Mandibulae (Pl. XI. fig. 34) lamellis pectinatis 6—7. Hypostoma[1] (Pl. XII. fig. 35): Stipites interni (*b*) maxillarum, nec non externi (*a*) seiuncti, inframaxillare (*c*—*d*) transversaliter bipartitum, parte basali (*c*) parum longiore quam latiore, parte antica (*d*) inframaxillaris tantum ad basim stipites externos maxillarum tangente, deinde inter stipites internos decurrente. Palpulus maxillaris externus (*h*) quam internus (h^1) parum brevior, lobi maxillares (*i*) interni perbreves. Infrabasilare (*e*) subrectangulare, magnum; pseudocardines (*g*) duo. Trunci segmenta carinis instructa vel carinis nullis. Foramina repugnatoria a segmento quarto vel quinto incipientia. Segmentum ultimum supra plus minusve rotundatum, valvulas anales non superans.

♂ Pedes primi paris ut in foemina vel breviores et ungue terminali destituti. Organum copulativum paribus duobus pedum constitutum, semper bene distinctis; pare antico flagello instructo vel non.

Typus: Genus *Cambala* ex America boreali.

This family comprehends two sub-families, Glyphiocambalinae and Mastigocambalinae. To the first sub-family belong the genera *Glyphiulus* Gerv. *Hypocambala* Silv. *Agastrophus*[2] Attems, ? *Trichocambala*[3] Silv. and *Iulomorpha* Por. without flagellum in the anterior copulatory legs of the male; and to the Mastigocambalinae the genera *Cambala* and *Dimerogonus*, that have a well-developed flagellum.

Dimerogonus is very distinct from *Cambala* by the absence of longitudinal crests on the segments of the truncus.

The family of the order Diplocheta, very close to the Cambalidae, is that of the Nannolenidae, which comprehends only the genus *Nannolene* Bollman, and is distinct from Cambalidae by the broader Hypostoma, shorter stipites interni and presence of one pair alone of the copulatory organ, as in Pseudonannolenidae and Physiostreptidae, although, as in the named family, the 6th segment of the truncus wants ambulatory legs.

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[1] For the nomenclature of the mouth parts cf. my work "Classis Diplopoda, Vol. I. Anatome; Pars 1^a Segmenta, Tegumentum, Musculi" [in] "Berlese's Acari, Myriopoda et Scorpiones," Portici 1903.

[2] The genus *Agastrophus* Attems (Zool. Jahrb. XIII. p. 151) is a synonym of *Hypocambala* Silv., I think, but why the author does not describe the labrum, I am not sure.

[3] I ascribe with doubt *Trichocambala* to this family, because I know not the male.

DIMEROGONUS Attems.

(1) *Dimerogonus aveburyi*, sp. nov.

♂ Nigrescens, metazonarum parte postica, antennis pedibusque pallide rufescentibus. Caput laevigatum. Oculi ocellis c. 35 compositi. Antennae resupinae trunci segmentum primum vix superantes, articulo sexto quam ceteri parum crassiore. Collum (Pl. XI. fig. 18) lateribus sat angustatis, angulo antico exciso, rotundato, postico parum acuto, utrimque striis 5—6 exaratum.

Trunci segmenta metazonis quam praezonae sat magis elevatis, supra et ad latera laevigatis, tantum valde longe sub poris longitudinaliter striatis. Cauda et valvulae anales forma consueta.

Pedes primi paris breves, ungue nullo. Stipitis mandibulares triangulariter infra paullulum producti.

Organum copulativum: pars antica (fig. 19) lamina externa (*a*) quam interna paullulum longiore, lamina interna (fig. 20 *b*) bilobata, lobo postico subtriangulari, lobo antico antice acuto, postice ad basim profunde inciso, ad apicem rotundato. Pars postica (fig. 21) lamina mediana (*c*) apice setoso, quam processus posticus (*d*) parum longiore, processu postico apice parum attenuato, inciso, processu antico (rudimento articulorum 2—7) subcylindrico, apice setis minimis aucto.

Segmentorum numerus ad 45.

Long. corp. 26, lat. 1, 9.

HAB. Maui, Haleakala, 5000 feet (Perkins III. 1894).

I have the privilege of naming this new species in honour of the eminent entomologist the Lord Avebury, formerly Sir John Lubbock.

(2) *Dimerogonus sharpi*, sp. nov.

♀ Dorsum atrum, fascia mediana testacea sat lata ornatum, pororum repugnatoriorum linea nigra, paratergita plus minusve cinerea, ventre pedibusque pallide ochroleucis. Caput laevigatum, nudum. Oculi triangulares ocellis c. 27 compositi (2, 3, 6, 7, 9). Antennae (Pl. XI. fig. 22) sat longae, resupinae, collum et trunci segmentum primum superantes, articulo sexto ceteris aliquantum crassiore.

Collum lateribus angustatis, angulo antico valde obtuso-rotundato, postico subrecto, utrimque striis 3—4 exaratum.

Truncus. Metazonae laevigatae, nitidae, quam praezonae magis elevatae. Sulcus interzoniticus profundus. Metazonae paratergales parum longe sub poris longitudinaliter et subtiliter striatae. Pori repugnatorii magni in parte mediana laterali metazonarum siti. Segmentum caudale postice obtusum, valvulas anales non superans. Lamina praeanalis sat magna, postice rotundata et setis duabus aucta. Valvulae anales haud limbatae setis duabus utrimque instructae.

Pedes sat breves, ungue terminali robusto, acuto, articulis ceteris setis nonnullis auctis.

Segmentorum numerus ad 45.

Long. corp. 21, lat. 1, 5 ; long. antenn. 1, 6.

♂ Quam foemina aliquantum angustior.

Pedes paris primi breves ungue terminali nullo, articulis 4—6 inter sese subaequalibus, articulo tertio ceteris longiore.

Organum copulativum : pars antica (fig. 23—24) lamina externa (*a*) lata, interne concava, apice sat rotundato, quam lamina interna (*b*) aliquantum longiore, lamina interna (fig. 25 *b*) apice profunde inciso, parte antica (1) inaequaliter bilobata, parte postica (2) triangulari flagello, (*f*) longo, attenuato.

Pars postica (fig. 26—27) processu postico (*g*) quam lamina mediana vix longiore, interne reflexo, acuto, lamina mediana (*e*) apice truncato setis sat brevibus instructo, processu antico (*d*) quam lamina mediana spatio magno breviore, subcylindrico ad apicem setis brevissimis, crassis, instructo.

HAB. Maui, Haleakala, 4000 feet (Perkins 1896).

I have the honour to name this species after David Sharp.

In the collection sent to me by Dr Sharp are also two female specimens from Oahu, that I am not able to distinguish specifically. This is their description :

Dimerogonus sharpi, var.

♀ Ater, dorsi fascia mediana sat lata, ventre pedibusque luride ochroleucis.

Caput laevigatum. Oculi ocellis c. 30 compositi. Antennae resupinae trunci segmentum secundum superantes, articulo sexto quam quintus aliquantum crassiore.

Collum lateribus abbreviatis et angustatis, angulo antico exciso rotundato, postico obtuso rotundato, utrimque striis tribus.

Trunci segmenta laevigata praeter partem paratergalem metazonarum longe sub poris longitudinaliter striatam, metazonis quam praezonae aliquantum magis elevatis. Cauda postice rotundata, valvulas anales non superans. Lamina infraanalis postice rotundata, setis duabus instructa. Valvulae anales haud limbatae, setis duabus utrimque instructae. Pedes sat longi, infra setis nonnullis instructi, ungue sat magno ad basim seta aucto.

Segmentorum numerus 42—45.

Long. corp. 20, lat. 1, 1, long. antenn. 1, 3, long. pedum 1, 36.

HAB. Oahu, Kawailea (Perkins IV. 1893).

(3) *Dimerogonus shipleyi*, sp. nov.

♂ Pallide ater, metazonarum parte postica pedibusque rufescentibus.

Caput laevigatum. Oculi ocellis c. 34 compositi. Antennae resupinae trunci segmentum primum vix superantes, articulo sexto quam quintus parum crassiore.

Collum lateribus sat latis, marginem inferum trunci segmenti primi non attingentibus, angulo antico late rotundato, postico subrecto, utrimque stria longitudinali integra aliquantum longe a margine infero exaratum.

Trunci segmenta laevigata, praeter metazonarum partem paratergalem longe sub poris longitudinaliter striata, metazonis quam praezonae parum magis elevatis. Cauda postice rotundata valvulas anales non superans. Lamina infraanalis forma et setis consuetis. Valvulae anales haud limbatae, setis duabus instructae.

Stipites mandibulares infra triangulariter paullulum producti.

Pedes primi paris forma consueta, parium 4—7 processibus nullis, tantum setis nonnullis instructi.

Organum copulativum: pars antica (Pl. XI. fig. 28) lamina externa (*a*) apice late rotundato quam lamina interna (*b*) parum longiore, lamina interna trilobata, lobo antico (1) parvo triangulari quam medianus (2) aliquantum breviore, lobo mediano (2) forma ut figura demonstrat, lobo postico (3) ceteris breviore a mediano incisura profunda diviso, apice angusto, antice rotundato, flagello (*f*) consueto. Pars postica forma fere ut in *D. sinclairi*.

Segmentorum numerus 50.

Long. corp. 20, lat. 1, 2.

HAB. Maui, Haleakala 5000 feet (Perkins III. 1894).

Species dedicated to E. Arthur Shipley of Cambridge.

(4) *Dimerogonus carpenteri*, sp. nov.

♀ Ater, ventre, pedibus et valvulis analibus subcremeis.

Caput laevigatum. Oculi ocellis 24 compositi. Antennae resupinae trunci segmentum primum superantes, articulo sexto quam quintus parum crassiore.

Collum lateribus abbreviatis et angustatis, antice et postice excisis, triangularibus, angulo infero rotundato, utrimque striis 2—3 exaratum.

Trunci segmenta laevigata, praeter partem paratergalem metazonarum longissime sub poris longitudinaliter striatam, metazonis quam praezonae aliquantum magis elevatis. Lamina infraanalis postice rotundata setis duabus instructa. Cauda postice rotundata valvulas anales non superans. Valvulae anales haud limbatae, setis duabus consuetis.

Segmentorum numerus 39.

Long. corp. 13, lat. 1, long. pedum 0, 9.

♂ Stipites mandibulares infra triangulariter paullulum producti.

Collum fere ut in foemina, angulo postico minus exciso.

Pedes primi paris forma consueta; pedes ceteri ut in foemina.

Organum copulativum: pars antica (fig. 29) lamina externa (*a*) apice rotundato, postice ad apicem sinuata, lamina interna (*b*) apice trilobato, lobo antico (1) acuto, brevi, lobo mediano (2) quam ceteri aliquantum longiore angustato, apice rotundato, lobo postico (3) quam ceteri latiore, flagello (*f*) consueto. Pars postica (fig. 30) processu postico (*d*) apice attenuato integro.

Segmentorum numerus 45.

HAB. Lanai, 2000 feet (Perkins).

This new species is named after George Herbert Carpenter of Dublin.

(5) *Dimerogonus beddardi*, sp. nov.

♀ Niger pedibus rufescentibus.

Caput laevigatum. Oculi ocellis c. 21 compositi. Antennae breves, trunci segmentum primum superantes, articulo sexto quam quintus parum crassiore.

Collum (Pl. XI. fig. 31) lateribus partem ventralem trunci segmenti primi non attingentibus, angulo antico exciso, rotundato, postico parum acuto, utrimque striis tribus exaratum.

Trunci segmenta laevigata praeter partem paratergalem metazonarum longe sub poris longitudinaliter striatam, metazonis quam praezonae aliquantum magis elevatis. Cauda rotundata valvulas anales non superans. Lamina infraanalis postice sat rotundata. Valvulae anales haud limbatae, setis duabus consuetis.

Segmentorum numerus 50.

Long. corp. 23, lat. 1, 1.

♂ Quam foemina angustior. Oculi ocellis c. 17 compositi. Collum ut in foemina.

Stipites mandibulares infra triangulariter paullulum producti.

Pedes primi paris forma consueta, parium 4—5 articulo quinto infra triangulariter parum producto, parium 6—7 (fig. 32) articulis 4—5 infra in processum subtrapezoideum productis.

Organum copulativum: pars antica (fig. 33) lamina externa (*a*) apice subtriangulari quam lamina interna (*b*) aliquantum longiore, lamina interna profunde bilobata, lobo antico (1) quam lobus posticus (2) paullulum longiore et antice acute producto, postice late rotundato, lobo postico (2) antice rotundato, flagello (*f*) consueto. Pars postica processu postico apice sat attenuato, quam lamina mediana vix longiore.

HAB. Maui, Haleakala, 4000 feet (Perkins v. 1896).

Species named in honour of Frank Evers Beddard of London.

(6) *Dimerogonus pococki*, sp. nov.

♀ Ater parte postica metazonarum, cauda, valvulis analibus pedibusque rufescentibus.

Caput laevigatum. Oculi ocellis c. 27 compositi. Antennae resupinae trunci segmentum primum superantes, articulo sexto quam quintus aliquantum crassiore.

Collum lateribus marginem ventralem trunci segmenti primi non attingentibus, angulo antico exciso parum rotundato, postico acuto, utrimque striis tribus exaratum.

Trunci segmenta laevigata praeter partem paratergalem metazonarum longe sub poris longitudinaliter striata, metazonis quam praezonae parum magis elevatis. Cauda postice rotundata valvulas anales non superans. Lamina infraanalis postice sat rotundata, setis duabus instructa. Valvulae anales haud limbatae, setis duabus utrimque consuetis.

Segmentorum numerus 46.

Long. corp. 28, lat. 1, 6, long. pedum 1, 4.

♂ Stipites mandibulares infra rotundatim aliquantum producti.

Collum fere ut in foemina.

Pedes paris primi (Pl. XII. fig. 36) forma consueta, parium 4—7 (fig. 37) ceteris crassiores et aliquantum longiores, articulis 3—5 (praesertim in pedum paribus 6—7) infra compressis et in processum latum subtriangularem vel subtrapezoideum productis.

Organum copulativum: pars antica (fig. 38) lamina externa (*a*) apice subrecte truncato, quam lamina interna (*b*) parum longiore, lamina interna (fig. 39 *b*) apice bilobato, lobo antico (1) quam alter angustiore, triangulari, lobo postico (2) late rotundato. Pars postica (fig. 40) processu antico (*g*) subcylindrico, apice setis brevissimis, crassiusculis aucto, quam lamina mediana (*e*) aliquantum breviore, processu postico (*d*) apice sat angustato, quam lamina mediana parum breviore.

Hab. Molokai Mts., 3000—4000 feet (Perkins v.—vi. 1893).

Dedicated to R. I. Pocock of London.

(7) *Dimerogonus sedgwicki*, sp. nov.

♂ Tergitis totis, metazonarum parte postica paratergali, antennis pedibusque tufaceis, ceterum corpus nigrescens.

Caput laevigatum. Oculi ocellis c. 40 compositi. Antennae (Pl. XII. fig. 41) trunci segmentum primum superantes, articulo sexto quam quinto paullulum crassiore.

Collum infra trunci segmentum primum non superans, laterum angulo antico late rotundato, postico subacuto, utrimque striis tribus exaratum.

Trunci segmenta metazonis quam praezonae parum magis elevatis, laevigatis, tantum longe sub poris striatis. Cauda postice lata, triangularis, valvulas anales non superans; lamina infraanalis postice parum rotundata; valvulae anales haud limbatae, nudae.

Stipites mandibulares infra rotundatim parum producti.

Pedes longi, longiores quam in speciebus ceteris hic descriptis, primi paris tenues, breves, ungue nullo, parium 4—7 (fig. 42) ceteris crassiores, articulis 4—5 infra in processum sat parvum, subtrapezoideum productis.

Organum copulativum: pars antica (fig. 43) lamina externa (*a*) apice parum rotundato quam lamina interna (*b*) aliquantum longiore, lamina interna (fig. 44 *b*) profunde incisa, lobo antico (1) lato irregulariter rectangulari, ut figura demonstrat, lobo postico (2) angusto, apice rotundato. Pars postica (fig. 45—46) processu antico (*g*) clavato, setis brevissimis, crassiusculis aucto, processu postico (*d*) quam lamina mediana (*e*) vix breviore, laminari, sat angustato, apice reflexo.

Segmentorum numerus ad 51.

Long. corp. 26; lat. 1, 5; long. pedum 2.

HAB. Oahu, Waianae Mts. (Perkins, IV. 1892)

This new species is dedicated to Adam Sedgwick of Cambridge.

(8) *Dimerogonus sinclairi*, sp. nov.

♀ Luride rufescens, poris nigro maculatis, antennis pedibusque subtestaceis.

Caput laevigatum. Oculi subtriangulares ocellis c. 32 (3, 5, 6, 8, 10) compositi. Antennae resupinae collum et trunci segmentum primum superantes, articulo sexto quam ceteri parum crassiore.

Collum lateribus angustatis angulo antico exciso, rotundato, postico subrecto utrimque striis 5—7 exaratum.

Truncus, sculptura ut in *D. sharpi*, sulco interzonitico minus profundo quam idem speciei praecedentis.

Cauda valvulas anales non superans.

Segmentorum numerus ad 44.

Long. corp. 23; lat. 1, 8; long. antenn. 1, 8.

♂ Collum lateribus latis, latioribus quam in foemina, angulis antico et postico subrectis, rotundatis.

Stipites mandibulares infra late parum producti.

Pedum par primum breve, articulo secundo (Pl. XII. fig. 42) processum parvum, apicalem, infra producto.

Organum copulativum: pars antica (fig. 48) lamina externa (*a*) lata, interne parum concava quam lamina interna (fig. 49 *b*) integra parum longiore, flagello (*f*) attenuato, longo; pars postica (fig. 50—51) processu antico (*g*) parum clavato, quam lamina mediana (*e*) spatio magno breviore, ad apicem setis minimis crassis aucto, lamina mediana (*e*) apice rotundato, setis instructo, processu postico (*d*) laminam internam fere superante, attenuato, apice reflexo.

HAB. Maui, Haleakala, 4000—5000 feet (Perkins III. 1894, V. 96).

I have much pleasure in naming this species after my colleague, F. G. Sinclair (formerly Heathcote).

(9) *Dimerogonus lankesteri*, sp. nov.

♂ Niger, metazonarum parte postica, antennis pedibusque pallide ferrugineis.

Caput laevigatum. Oculi ocellis c. 19 compositi. Antennae trunci segmentum primum vix superantes, articulo sexto quam ceteri paullulum crassiore.

Collum lateribus valde latis, incrassatis, margine infero paullulum triangulari rotundato, angulo laterali extremo acuto intus inflexo, utrimque infra striis 5 instructum, pone oculos parum sinuatum.

Trunci segmenta metazonis quam praezonae vix magis elevatis, laevigatis, tantum longe sub poris longitudinaliter striatis. Cauda et valvulae anales forma consueta.

Stipites mandibulares infra rotundatim parum producti.

Pedes primi paris breviores, ungue nullo; parium 3—7 infra tantum setis brevioribus, sat robustis, aucti.

Organum copulativum: pars antica (Pl. XII. fig. 52) lamina externa apice rotundato (*a*) quam interna parum longiore, lamina interna (fig. 52 *b*) apice trilobato, lobo antico (1) perparvo sat acuto, quam ceteri (2—3) subaequales breviore. Pars postica processu postico ad apicem acuto quam lamina mediana parum breviore.

Segmentorum numerus 46.

Long. corp. 25; lat. 1, 8.

HAB. Kauai, Halemanu (Perkins, v. 1894).

This new species is named in honour of Prof. Edwin Ray Lankester, the eminent Director of the British Museum.

(10) *Dimerogonus harmeri*, sp. nov.

♂ Rufescens totus.

Caput laevigatum. Oculi ocellis c. 27. Antennae breves, resupinae collum vix superantes, articulo sexto quam ceteri paullulum crassiore.

Collum (Pl. XII. fig. 53) lateribus valde latis, deorsum et extrorsum vergentibus, marginis inferi angulo antico rotundato, postico subrecto, utrimque striis nullis, infra (fig. 54) latum excavatum, margine interno acuto, lateraliter stipites mandibulares antice fere omnino obtegens. Trunci segmenta metazonis quam praezonae aliquantum magis elevatis, laevigatis, tantum longe sub poris longitudinaliter striatis. Cauda postice parum rotundata, valvulas anales non superans; lamina infraanalis postice aliquantum rotundata, setis duabus instructa. Valvulae anales non limbatae, ad marginem setis pluribus sat brevibus instructae.

Stipites mandibulares infra rotundatim paullulum producti.

Pedes primi paris breviores, ungue nullo, parium 3—7 infra setis nonnullis brevibus, sat robustis instructi.

Organum copulativum: pars antica (fig. 55) lamina externa (*a*) apice parum rotundato quam lamina interna parum longiore, lamina interna (fig. 56 *b*) in processibus duobus profunde partita, quorum anticus (1) angustus triangularis, quam alter parum brevior, posticus (2—3) apice bilobato ut figura demonstrat. Pars postica eadem fere forma ut in *D. Lankesteri.*

Segmentorum numerus 54.

Long. corp. 26 ; lat. 1, 5.

HAB. Molokai, 3000—4000 feet (Perkins, V.—VI. 1893).

Named in honour of Sidney F. Harmer, the Superintendent of the University Museum of Zoology in Cambridge.

(11) *Dimerogonus perkinsi*, sp. nov.

♀ Fulvo-castaneus : parte postica metazonarum, antennis pedibusque rufescentibus.

Caput laevigatum. Oculi ocellis c. 32 compositi. Antennae sat breves, resupinae, trunci segmentum primum vix superantes, articulo sexto quam ceteri parum crassiore.

Collum angulo antico valde rotundato, postico parum acuto, utrimque striis 2—3 exaratum.

Trunci segmenta dorso et praezonis nitidis, metazonis parum longe sub poris longitudinaliter striatis. Metazonae quam praezonae parum magis elevatae. Cauda postice sat late rotundata, valvulas anales non superans.

Pedes breves, setis nonnullis instructi, ungue terminali magno.

Segmentorum numerus ad 54.

Long. corp. 23 ; lat. 1, 8 ; long. antenn. 1, 2.

♂ Quam foemina angustior.

Stipites mandibulares infra rotundatim aliquantum producti.

Collum (Pl. XII. fig. 57) lateribus latis, valde incrassatis, deorsum et extrorsum aliquantum vergentibus, angulis rotundatis, utrimque striis nullis, infra parum excavatum, angulo interno acuto.

Pedes paris primi breves, ungue nullo, articulo secundo subcylindrico, tertio quam ceteri longiore, paris tertii (fig. 58) articulis 4—5 infra ad basin in processum subcylindricum, sat brevem, parum crassum productis, articulo sexto ad basin infra paullulum triangulariter producto, parium 4—5 etiam articulo tertio infra in processum parvum producto, parium 6—7 articulis fere ut idem paris tertii productis.

Organum copulativum : pars antica (fig. 59) lamina externa (*a*) apice triangulari quam lamina interna (fig. 60 *b*) bilobata aliquantum longiore, flagello (*f*) longo, attenuato. Pars postica (fig. 61—62) processu antico, crasso, paullulum clavato et setis brevissimis, crassis instructo, quam lamina mediana spatio maiore breviore, processu postico (*d*) apice bifido quam lamina interna vix breviore.

HAB. Maui, Haleakala, 5000 feet (Perkins, III. 1894).

I take much pleasure in naming this species after Robert Perkins, to whom we are all so much indebted.

(12) *Dimerogonus koebelei*, sp. nov.

♂ Nigrescens parte postica metazonarum, antennis pedibusque luride cremeis.

Caput laevigatum. Oculi ocellis c. 10 compositi, partim a collo obtecti. Antennae resupinae trunci segmentum primum superantes. Articulo sexto ceteris parum crassiore.

Collum (fig. 63) lateribus perlatis, angulo antico late rotundato, postico subacuto, infra inflexo, utrimque striis 6 exaratum, pone oculos aliquantum sinuatum.

Trunci segmenta metazonis quam prozonae magis elevatis, sulco interzonitico profundo, dorso laevigato, metazonis parum sub poris longitudinaliter striatis. Cauda postice rotundata, valvulas anales non superans; lamina infraanalis postice sat rotundata, setis duabus aucta. Valvulae anales immarginatae, tuberculis duobus magnis parum longe a margine mediano auctae.

Pedes parium 4—7 (fig. 64) articulo secundo infra setis pluribus instructo, articulo tertio ad mediam partem inferam processu subtriangulari aucto, articulis 4—6 ad basim infra processu subconico, brevi praeditis.

Stipites mandibulares infra in processum parvum subtrapezoideum producti.

Organum copulativum: pars antica (fig. 65) lamina externa (*a*) apice triangulari quam lamina interna (*b*) parum longiore, lamina interna bilobata, lobo postico quam antico (*c*) longiore, flagello (*f*) consueto. Pars postica fere ut in specie praecedente (D. Perkinsi).

Segmentorum numerus 49.

Long. corp. 24; lat. 1.7; long. antenn. 3.4.

Hab. Maui, Haleakala, 5000 feet (Perkins, iii. 1894).

I dedicate this species to Albert Koebele, entomologist in the Hawaiian Islands.

ZYGOCHETA

Fam. IULIDAE

DIPLOIULUS[1] Berl.

(1) *Diploiulus luscus*, Meinert

Hab. Hawaii, Kona, 4—5000 feet (Perkins).

These European species were certainly introduced by man.

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[1] [illegible] p. 7. Name not in Scudder or Index Zoologicus.—Editor.]

ARACHNIDA (SUPPLEMENT)[1].

H. S. Barber,
U. S. Nat. Museum,
Wash., D. C.

Par Eugène Simon.

Les Arachnides énumerés dans ce supplément ont tous été recueillis par M. R. C. L. Perkins, dans les montagnes de l'Ile Oahu, ce qui nous dispensera de répéter la localité pour chacun d'eux.

Le nombre total des espèces est de 34, dont 14, décrites d'autres Iles de l'archipel, n'avaient pas encore été trouvées à Oahu.

Quatre sont nouvelles: 1° *Mecaphesa perkinsi*, le genre *Mecaphesa*, particulier aux Iles Sandwich, y était déjà représenté par deux espèces, *M. cincta* E. Sim., de Maui et *semispinosa* E. Sim., de Hawaii; 2° *Synaema rufithorax*, assez voisin de *S. dimidiatipes*, l'un et l'autre anormaux pour le genre *Synaema* par le grand nombre des épines qui garnissent leurs pattes antérieures; 3° *Lycosa perkinsi* E. Sim., qui ne rentre dans aucun des groupes admis du grand genre *Lycosa*; 4° *Priperia bicolor*, petite espèce du groupe des *Erigone* pour laquelle nous avons proposé un genre voisin des *Ceratinopsis* et *Clitolyna*. Enfin M. R. C. L. Perkins a capturé les deux sexes de *Ariamnes corniger* E. Sim., dont on ne connaissait que la femelle, ce qui nous a permis de compléter la description de cette espèce remarquable.

Scytodes marmorata L. Koch. F. H. vol. II. p. 444. Oahu.

Dysdera crocata C. Koch. F. H. vol. II. p. 444. Oahu.

Ariadna perkinsi E. Simon. F. H. vol. II. p. 445.
Trouvé antérieurement par M. Perkins à Oahu (Mts. Waianae), à Kauai et à Lanai.

Smeringopus elongatus Vinson. F. H. vol. II. p. 446. Oahu.

Argyrodes argyrodes Walckenaer. F. H. vol. II. p. 446. Oahu.

ARIAMNES CORNIGER E. Simon, Fauna Hawaiiensis, II. p. 447.

♂. Long. 6–7mm. A femina differt magnitudine minore; fronte magis acuminata, inter oculos medios, nigros et reliquis oculis multo majores, apophysi longa subverticali, tenui, apice vix incrassato et minutissime granuloso, instructa, clypeo apophysi altera duplo minore, erecta atque acuta insigniter armato.

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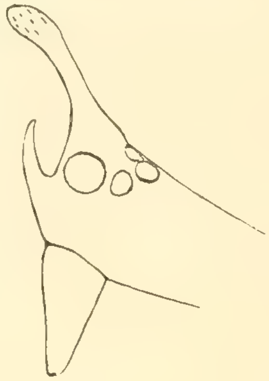
[1] The contribution to which this is supplementary is included in Vol. II. pp. 443—519.

Le tubercule frontal déjà indiqué chez la femelle est beaucoup plus long, ressemblant à celui du *Rhomphaea projiciens* Cambr., de l'Amérique centrale (cf. Biol. centr. Amer., Ar., t. 1, pl. xxxiii. f. 9), cependant moins dilaté et nullement pileux à l'extrémité ; il s'y joint une seconde pointe partant du bandeau, de moitié plus petite, aiguë et dirigée en haut, disposition rappelant celle de *l'Argyrodes bicornis* Cambr., du Brésil.



A. corniger, E. Sim., est intermédiaire aux genres *Ariamnes* et *Rhomphaea* et pourrait avec presque autant de raison être rapporté à l'un ou à l'autre. Les caractères sexuels ont aussi de l'analogie avec ceux de certains *Argyrodes.*

Theridion perkinsi E. Simon, Fauna Hawaiiensis, II. p. 454.

Varietas. Cephalothorax albido-lutescens, vitta media obscuriore vix expressa et confusa. Abdomen albidum, supra punctis nigris paucis, vittas duas parallelas designantibus, vittaque media parce albo-opaco-punctata notatum, subtus concolor, punctis nigris apicalibus carens. Pedes lutei concolores.

Découvert à Maui et Kauai.

Theridion acutitarse E. Simon. F. H. II. p. 456. Oahu.

Cnephalocotes simpliciceps E. Simon. F. H. II. p. 462. Oahu.

Cette espèce n'était connue jusqu'ici que de Hawaii (Kona).

PRIPERIA, nov. gen.

Ab *Hypselisthi* differt oculis posticis multo majoribus et confertioribus, mediis inter se quam a lateralibus paulo remotioribus sed spatio interoculari oculo paulo minore, tibiis anticis setis spiniformibus seriatis carentibus, ab *Typhisti* differt oculis posticis multo majoribus, oculis mediis anticis reliquis minoribus et pedibus ut in *Nematogmo* breviter pilosis.

(1). *Priperia bicolor*, sp. nov.

♂. Long. 1·8 mm. Cephalothorax brevis, pallide luteus, laevis. Oculi antici in lineam rectam, medii nigri, lateralibus minores, a sese subcontigui, a lateralibus spatio oculo haud minore separati. Oculi postici albi, magni, in lineam procurvam, medii inter se quam a lateralibus paulo remotiores sed spatio interoculari oculo paulo minore. Oculi quatuor medii aream vix longiorem quam latiorem et antice quam postice multo angustiorem occupantes, medii antici posticis minores. Clypeus verticalis planus, area oculorum paulo angustior. Abdomen late ovatum, postice acuminatum, albido-testaceum, parce pilosum, in medio linea fusca tenui arcuata sectum. Chelae, partes oris sternumque luteo-rufescentia, pars labialis transversa ad basin infuscata, sternum convexum et nitidum, cordiforme, latius quam longius, postice obtusum et coxae posticae a sese spatio articulo latiore separatae. Pedes sat longi et tenues, fulvo-olivacei, femoribus dilutioribus, breviter pilosi, tarsis anticis sat longis sed metatarsis brevioribus. Pedes maxillares sat debiles, pallide lutei, tarso bulboque rufescentibus, patella vix latiore quam longiore convexa, tibia patella circiter aequilonga, extus ad apicem leviter prominula et apophysi sat longa, gracili sed obtusa, leviter arcuata et secundum marginem tarsi ducta armata, tarso sat parvo ovato et obtuso, extus prope basin leviter anguloso, bulbo ovato, sat complicato.

Labulla torosa E. Simon. F. H. II. p. 464. Oahu.
Espèce répandue à Hawaii, Maui, Molokai et Kauai

Tetragnatha hawaiensis E. Simon. F. H. II. p. 470. Oahu.
Découvert à Hawaii.

NOTA. Plusieurs jeunes *Tetragnatha* se rapportant probablement à d'autres espèces mais non déterminables ont été capturés en même temps par M. Perkins.

Argiope avara Thorell. F. H. II. p. 467. Oahu.
Cyclosa albisternis E. Simon, vol. II. p. 478. Oahu.
En grand nombre.

Araneus emmae E. Simon. F. H. II. p. 482. Oahu.
En grand nombre.
Déja indiqué de Hawaii, Molokai, Lanai et Kauai.

Araneus kapiolaniae E. Simon. F. H. II. p. 483. Oahu.
Un seul individu.
Décrit de Hawaii.

Misumena oreades E. Simon. F. H. II. p. 485. Oahu.
En très grand nombre.

Misumena nesiotes E. Simon. F. H. II. p. 485. Oahu.
Connu de Hawaii et Molokai.

Misumena anguliventris E. Simon. F. H. II. p. 488. Oahu.
En grand nombre.

Diæa insulana Keyserling. F. H. II. p. 490. Oahu.

Representé par plusieurs variétés.

Indiqué de Hawaii, Molokai, Maui et Kauai.

Synaema rufithorax, sp. nov. [cf. vol. II. p. 492].

♀ (pullus). Long. 7 mm.—Cephalothorax sat humilis, subtiliter coriaceus, rufulo-castaneus. Oculi antici inter se aequidistantes, lateralibus mediis saltem duplo majores. Oculi medii postici lateralibus paulo minores a lateralibus quam inter se evidenter remotiores. Area mediorum non multo latior quam longior et antice quam postice vix angustior. Clypeus oculis mediis anticis non multo latior, ad marginem setis nigris iniquis, uniseriatis 8 vel 10 armatus. Abdomen longe oblongum, supra atrum antice utrinque late dilutius et rufulo-lividum, subtus fulvo-rufescens postice atro-marginatum, mamillae fulvae. Chelae latae et convexae, fulvo-rufulae, laeves, parce et valde nigro-crinitae, partes oris, sternum coxaeque fulvo-rufula. Pedes quatuor antici longi, fusco-castanei, femoribus nigris, femore primi paris antice prope basin aculeis trinis seriatis aculeoque submedio, tibia aculeis inferioribus sat brevibus sed validis 6–6 vel 7–7, aculeis minoribus saepe intermixtis, metatarso aculeis similibus 4–4 vel 4–3, instructis. Pedes quatuor postici fulvo-rufuli, metatarsis tarsisque pallide luteis, femoribus aculeo dorsali parvo munitis, reliquis articulis muticis.

A *S. dimidiatipedi*, cui praesertim affine est, imprimis differt cephalothorace rufo humiliore, oculis mediis posticis a lateralibus quam inter se multo remotioribus et area oculorum mediorum vix latiore quam longiore.

HAB. Oahu.

Synaema fronto E. Simon. F. H. II. p. 493. Oahu.

Espèce jusqu'ici propre à l'Ile Oahu.

Mecaphesa perkinsi, sp. nov. [cf. vol. II. p. 495].

♀ (pullus). Long. 3 mm.—Cephalothorax subtiliter coriaceus, pilis brevissimis conspersus, pallide fusco-rufescens, utrinque fulvo-variatus et reticulatus, vitta media latissima fulva, antice inter oculos lineolas binas exillimas, pone oculos lineas convergentes v designantes, postice maculam longitudinalem, fuscas includente, supra ornatus. Oculi antici in lineam sat angustam, valde recurvam, inter se fere aequidistantes, laterales mediis plus duplo majores. Oculi postici inter se subaequales, in lineam multo latiorem valde recurvam, medii a lateralibus quam inter se fere $\frac{1}{3}$ remotiores. Oculi medii inter se subaequales, aream parallelam, longiorem quam latiorem occupantes. Clypeus oculis mediis anticis saltem duplo latior, ad marginem setis uniseriatis munitus. Abdomen antice rotundum, postice valde ampliatum et obtuse truncatum, supra fulvum, interdum concolor, interdum grosse et fere inordinate nigro-plagiatum, in declivitate et subtus albido-testaceum. Chelae coriaceae, partes oris sternumque fusco-olivacea. Pedes quatuor antici robusti, fusci, tarsis albidis, femoribus albido-variegatis, tibiis annulo submedio parum expresso, metatarsis annulo subbasilari albidis notatis, tibiis aculeis inferioribus sat brevibus 2–2, metatarsis aculeis paulo longioribus 3–3 aculeoque apicali interiore minore instructis. Pedes postici mutici, albido-testacei, patellis tibiis metatarsisque apice anguste fusco-annulatis.

A *M. semispinosa* E. Simon, cui sat affinis est, imprimis differt pedibus anticis brevioribus et annulatis, tibiis anticis aculeis 2–2 tantum armatis.

HAB. Oahu.

Proernus schauinslandi E. Simon. F. H. II. p. 497. Oahu.

Jusqu'ici particulier à l'Ile Oahu.

Proernus velox E. Simon. F. H. II. p. 499. Oahu.

Décrit de Maui.

Pagiopalus atomarius E. Simon. F. H. II. p. 500. Oahu.

Trouvé aussi à Hawaii, Molokai et Kauai.

Adrastidia stigmatica E. Simon. F. H. II. p. 503. Oahu.

L'une des espèces les plus répandues dans toutes les îles de l'Archipel.

Heteropoda regia, Fabr. Cf. vol. II. p. 504, *minor*. Oahu.

Plusieurs individus adultes des deux sexes capturés par M. Perkins dans les montagnes de Oahu sont remarquables par leur petite taille, ne dépassant pas de 15 à 20 millimètres.

Lycosa perkinsi, sp. nov. [cf. vol. II. p. 505].

♀. Long. 20 mm.—Cephalothorax longe ovatus, fulvo-rufescens, breviter et parum dense fulvo-cinereo-pubescens, parte thoracica, prope marginem, vittis radiantibus obscurioribus vix expressis notata, oculis posticis singulariter nigro-limbatis. Oculi quatuor antici inter se aequidistantes, medii lateralibus paulo majores, in lineam vix procurvam, paulo angustiorem quam lineam secundam. Oculi ser. 2ae. sat magni, spatio oculo fere duplo minore a sese distantes. Oculi quatuor postici, superne visi, aream latiorem quam longiorem et postice quam antice latiorem occupantes. Clypeus insigniter angustus, oculis parvis anticis saltem haud latior. Abdomen oblongum, fusco-testaceum subtus dilutius, supra antice linea fulva longitudinali confusa notatum, fulvo-cinereo-pubescens. Chelae validae, convexae, fusco-rufulae, nigro fulvoque

hirsutae, margine inferiore dentibus trinis, subcontiguis, inter se fere aequis, superiore dentibus trinis, medio alteris multo majore, armatis. Partes oris, sternum, pedesque fulvo-rufula (pars labialis infuscata). Pedes sat longi, apicem versus graciles, quatuor antici patellis muticis, tibiis aculeis inferioribus validis et longis 3-3 aculeoque laterali interiore submedio armatis, tibia 1^{i} paris aculeis apicalibus carente, tibia 2^{i} paris aculeo apicali interiore minore munita, metatarsis usque ad basin scopulatis, aculeis validis pronis 3-3, apicalibus minoribus, subtus armatis. Fovea genitalis (haud plane adulta) parva, carinula plana et nitida, lata, postice sensim ampliata et truncata, fulva cum angulis nigris, divisa.

Espèce fort remarquable différant beaucoup des quatre (*L. oahuensis* Keyserl., *hawaiiensis*, *kalukanai* et *likelikeae* E. Simon) actuellement connues des Iles Sandwich et ne rentrant exactement dans aucun des groupes du genre.

Elle se rapproche surtout du groupe de *L. radiata* Latr. dont elle diffère cependant par son bandeau très étroit, égalant à peine les yeux antérieurs, et par ses pattes fines aux extrémités.

HAB. Oahu.

Lycosella annulata E. Simon. F. H. II. p. 508. Oahu.

Espèce propre à l'Ile Oahu.

Syroloma major E. Simon. F. H. II. p. 509. Oahu.

Connu jusqu'ici de Hawaï et Kauai.

Hasarius adansoni Audouin. F. H. II. p. 511. Oahu.

Trouvé en grand nombre.

Sandalodes validus E. Simon. F. H. II. p. 514. Oahu.

Décrit de Hawaii.

Paraît commun dans les montagnes de Oahu.

Sandalodes verecundus E. Simon. F. H. II. p. 516. Oahu.

Espèce propre à l'Ile Oahu.

MACROLEPIDOPTERA [SUPPLEMENT][1].

H. S. Barber, U. S. National Museum, Washington, D. C.

By Edward Meyrick, B.A., F.Z.S., F.E.S.

Since the publication of my main paper, a considerable further collection was made by Mr Perkins, almost wholly in the island of Oahu, which had previously received little attention from him; and the results of an examination of this additional material are now shown, together with the correction of some previous errors, and the inclusion of two or three forms described elsewhere in the meantime.

Four genera and eighteen species are thus added to the list, and several species previously inadequately known have now been illustrated by extensive series. The general results indicated in the introductory portion of my main paper are however practically unaffected.

Two of the genera, *Nesochlide* and *Acrodrepanis*, are offshoots of *Scotorythra*, from which they do not greatly differ; one, *Hyperectis*, is an isolated form of *Pyraustidae*, of (at present) doubtful affinity and origin; and the fourth, *Evergestis*, is a common Indo-Malayan insect of undoubtedly artificial introduction.

Besides the species included in the above additional genera, there are added species of *Agrotis* (1), *Hypenodes* (1), *Plusia* (1), *Scotorythra* (5), *Omiodes* (1), *Phlyctaenia* (2), *Mestolobes* (1), and *Scoparia* (3). These are much what might have been anticipated, with the exception of the *Plusia*, which is a remarkable form, and the first endemic species of the genus, which it has the effect of removing from my category (*a*) to (*b*), placing it on the same footing as *Vanessa*.

Owing to the intermediate position of Oahu, which encourages a community of fauna with each of the two extremes, Hawaii and Kauai, the investigation of this island has somewhat reduced the percentage of endemic species confined to a single island, which now stands at about 61 per cent. instead of 67.

CARADRINIDAE.

Leucania Ochs.

Leucania euclidias Meyr. F. H. I. p. 140.

Forty-seven specimens, N.W. Koolau range, Oahu.

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[1] The contribution to which this is supplementary is included in Vol. I. pp. 123—275.

Leucania amblycasis Meyr. F. H. I. p. 141.

Three specimens, N.W. Koolau range (Waialua), Oahu, in March, May, and August.

AGROTIS Ochs.

Agrotis ypsilon Rott. Meyr. F. H. I. p. 143.

One specimen, N.W. Koolau range, Oahu.

Agrotis dislocata Walk. Meyr. F. H. I. p. 146.

One specimen, having the orbicular spot obsolete ; Honolulu, Oahu.

Agrotis hephaestaea, sp. nov.

♂ ♀. 36—50 mm. Head and thorax bright ferruginous-brown, with some whitish specks, face and sometimes crown suffused with whitish. Antennae in ♂ bidentate with triangular teeth. Forewings varying from ferruginous-ochreous to deep orange-ochreous, strigulated, or in ♀ wholly suffused, with dark red-brown, dorsal and terminal areas finely irrorated with violet-whitish ; subbasal line indistinctly indicated ; first and second lines formed of violet-whitish irroration edged with dark red-brown, more or less obsolete towards extremities ; orbicular very small, red-brown, sometimes obsolete ; reniform red-brown, its interior irrorated with dark fuscous. Hindwings fuscous-whitish tinged with rosy and irrorated with dark grey, appearing rosy-grey ; a dark grey crescentic discal mark and indistinct postmedian shade.

Fourteen specimens, N.W. Koolau range, Oahu, in July ; only one ♀, the largest and darkest specimen. In my tabulation of the genus this species would fall under the same head as *tephrias*, and it is apparently most allied to that species, but very distinct by its rich colouring, and the orbicular and reniform not marked with whitish.

Agrotis photophila Butl. Meyr. F. H. I. p. 147.

Three specimens, Honolulu and N.W. coast of Oahu, in May, June, and August ; not previously found by Mr Perkins.

Agrotis crinigera, Butl. Meyr. F. H. I. p. 148.

One specimen, mountains of Waimea watershed, Oahu, in March.

HELIOTHIS Ochs.

Heliothis armigera, Hüb. Meyr. F. H. I. p. 152.

Six specimens, coast of Oahu, in January.

SPODOPTERA Guen.

Spodoptera mauritia, Boisd. Meyr. F. H. I. p. 152.

One specimen, Honolulu, Oahu, in January.

PLUSIADAE.

SIMPLICIA Guen.

Simplicia robustalis Guen. Meyr. F. H. I. p. 153.

Ten specimens (including two ♂, not previously obtained), N.W. Koolau range, Oahu, in May and July.

HYPENODES Guen. [cf. vol. I. p. 153].

Hypenodes arrhecta, sp. nov.

♀. 19 mm. Head and thorax dark purplish-bronzy-fuscous. Palpi 3½ (second joint nearly 3, terminal joint less than 1), dark fuscous, apex of terminal joint ochreous-whitish. Antennae grey. Abdomen grey. Forewings dark purplish-bronzy-fuscous; first and second lines paler, dark-edged, first twice angulated above middle, followed by some whitish irroration, second straight, very oblique, followed by a band of whitish irroration, including indications of subterminal line; a terminal series of blackish dots: cilia deep bronze. Hindwings light grey, darker terminally; cilia pale grey.

HAB. Kauai, Mts Waimea, at 4,000 feet, two specimens. This species, formerly overlooked amongst the varieties of *altivolans*, is distinct from it and all the other species by the really straight second line.

Hypenodes sarothrura Meyr. F. H. I. p. 155.

Four specimens (two ♂, two ♀), N.W. and S.E. Koolau range, Oahu, in April and July. These range in expanse from 15 to 19 mm.; forewings more or less suffused with dark fuscous, first line not followed by white, discal black streak obsolete or represented by a discal spot, second line sometimes not followed by white suffusion; hindwings sometimes grey; forewings in ♀ lighter, sometimes whitish-sprinkled, with lines largely obsolete or indicated partially by black edgings only. Probably varies like *altivolans*, which it closely resembles; the distinction by the colour of hindwings, employed in my tabulation, fails; the species is best distinguished from *altivolans* by the widely rectangularly broken second line, and the ♂ also by the lateral tufts of abdomen.

Hypenodes altivolans Butl. Meyr. F. H. I. p. 155.

Four specimens, N.W. and S.E. Koolau range, Oahu.

COSMOPHILA Boisd.

Cosmophila noctivolans, Butl. Meyr. F. H. I. p. 158.

Two specimens, Honolulu and N.W. Koolau range, Oahu, in March and November.

Cosmophila sabulifera, Guen. Meyr. F. H. I. p. 158.

Ten specimens, N.W. and S.E. Koolau range, in August. Bred from "Hau." In two specimens the subbasal line is slightly marked with black, but quite different in form to *noctivolans*, being without the very sharp angle (the figure of *noctivolans*, Pl. IV. 16, fails to show this, which does in fact sometimes require a lens to make it clear).

HYPOCALA Guen.

Hypocala andremona, Cram. Meyr. F. H. I. p. 159.

Two specimens (one typical, one var. *velans*), N.W. Koolau range, Oahu, in March and July.

PLUSIA Ochs. [cf. vol. I. p. 159].

Plusia pterylota, sp. nov.

♂. 39 mm. Head ochreous, suffused with vermilion-red. Palpi ochreous, externally sprinkled with dark fuscous, elsewhere suffused with vermilion-red, terminal joint moderate. Antennae moderately bipectinated (4) for nearly $\frac{3}{4}$ of length. Thorax red-brown, collar whitish-ochreous mixed with reddish. Abdomen pale ochreous tinged with fuscous, with red-brown subbasal tuft. Forewings elongate-triangular, costa sinuate, termen bowed, oblique, dorsum distinctly sinuate; pale violet-fuscous sprinkled with dark fuscous; basal, discal, and dorsal areas as far as second line suffused with deep reddish-orange, terminal area partially suffused with lighter and duller orange; subbasal and first lines metallic brassy-yellow, latter angulated near costa; three shining silvery spots in disc, first antemedian, obliquely reniform, second oval, near beyond posterior extremity of first, third postmedian, narrow-transverse; an obscure dark fuscous curved median shade; second line cloudy, dark fuscous, bent in disc; subterminal line indicated by cloudy dark fuscous suffusion. Hindwings whitish-fuscous, beyond a curved postmedian line fuscous.

One specimen, S.E. Koolau range, Oahu, in July. This is a very striking and distinct species, differing from all described species of the genus by the pectinated antennae. I was at first disposed to think it was an exotic introduction, but cannot find any description that will apply to it; and I also sent a figure and particulars to Prof. J. B. Smith and Sir George Hampson, the two authorities most likely to know it, both of whom returned it as unknown. I must therefore regard it as an endemic form, the discovery of which puts *Plusia* on exactly the same level as *Vanessa*, each being now represented by one endemic and two or three apodemic species.

Plusia chalcites Esp. Meyr. F. H. I. p. 159.

One specimen, N.W. Koolau range, Oahu.

HYDRIOMENIDAE.

Eucymatoge Hüb.

(?) *Eucymatoge craterias* Meyr. F. H. I. p. 163.

One specimen possibly of this species, but too poor to identify with certainty, Wahiawe, Oahu, in April.

Eucymatoge monticolans, Butl. Meyr. F. H. I. p. 104.

Eleven specimens, N.W. Koolau range, Oahu.

SELIDOSEMIDAE.

Sisyrophyta Meyr.

Sisyrophyta gomphias Meyr. F. H. I. p. 169.

Six specimens, N.W. and S.E. Koolau range, Oahu, in July.

Nesochlide Perk.

Face with tuft of scales. Tongue developed. Antennae in ♂ bipectinated, simple towards base and on apical third. Palpi rough-scaled. Thorax hairy beneath, Abdomen densely clothed with shaggy hair beneath, in ♂ with large dense expansible genital tuft. Middle femora with dense brush of rough hairs beneath, posterior femora hairy beneath, posterior tibiae in ♂ dilated, hairy outwardly, containing hairpencil in groove, posterior tarsi in ♂ reduced. Forewings in ♂ without fovea, beneath with a large oval patch of fine dense modified scales occupying almost whole of cell, largely covered by a fringe of enlarged and dilated scales from its lower margin, above this a dense reflexed fringe of rough hairscales from anterior half of costa; 10 and 11 separate. Hindwings normal.

This is a development of *Scotorythra*, as to which opinions may differ whether it is entitled to more than subgeneric rank; perhaps on the whole clearness of conception is assisted by regarding it as a genus.

(1) *Nesochlide epixantha* Perk.

Nesochlide epixantha Perk., Ent. Mo. Mag. xxxvii. (1901), 216.

♂. 40—49 mm. Head and thorax orange-ochreous or ferruginous-orange. Antennae ochreous-whitish, pectinations 6, lined with black towards base. Abdomen 1½, whitish-ochreous, ventral and genital hairs more ochreous. Anterior and middle legs fulvous clouded with dark grey, brush of middle femora light orange-ochreous, posterior legs ochreous-whitish, tibiae faintly spotted with grey, dilated, enclosing fuscous hairpencil in groove, posterior tarsi ⅗. Forewings elongate-triangular, termen gently waved, bowed, rather oblique; deep ferruginous-orange, strigulated with dark fuscous; first, second, and subterminal lines thick, dark fuscous, waved-dentate, sometimes little marked, first obtusely angulated in middle, indented beneath costa, second almost straight, indented near dorsum, subterminal usually broken into spots, often obsolete; median line usually obsolete, but sometimes thick, dark fuscous, angulated above middle; discal spot narrow-oval, transverse, dark fuscous, often obsolete; a terminal series of dark fuscous dots. Hindwings with termen waved, rounded; whitish, ochreous-tinged posteriorly; cilia ochreous.

♀. 50 mm. Head and thorax whitish-ochreous. Forewings pale ochreous-yellowish, somewhat sprinkled with dark fuscous; first, second, and subterminal lines strongly marked, as in ♂ but more acutely dentate, first and second connected in disc by some bars of dark fuscous suffusion; discal spot strongly marked; terminal dots as in ♂. Hindwings ochreous-whitish; a waved grey postmedian line; some subterminal spots of cloudy grey suffusion; a terminal series of dark fuscous dots; cilia ochreous-whitish.

Forty specimens (thirty-nine ♂, one ♀), N.W. Koolau range, Oahu, in July. A very distinct and handsome species, varying a good deal in intensity of marking; probably the ♀ will be found to vary quite as much as the ♂.

SCOTORYTHRA Butl.

Scotorythra arboricolans Butl. Meyr. F. H. i. p. 173.

Three specimens, N.W. Koolau range, Oahu, in April. The pale band beyond second line is sometimes yellowish-tinged; the discal spot is sometimes obscure.

Scotorythra caryopis Meyr. F. H. i. p. 173

The following notes are enlargements of the original description:

♂ 22—31 mm., ♀ 26—32 mm. Antennal pectinations of ♂ 7—8. Forewings with first and second lines in ♂ usually dotted as in ♀, only exceptionally marked with dark fuscous; discal spot usually very indistinct or obsolete; median line not usually marked with dark fuscous, its dorsal approximation to second line somewhat variable, not always considerable; seldom in ♂ a distinct narrow pale band beyond second line formed by absence of dark strigulations; subapical streak seldom marked; in ♀ median band and terminal space beneath apex seldom suffused with dark fuscous.

One hundred and twenty-six specimens, N.W. Koolau range, Oahu, in July and August. This extensive series shows the species to be variable in the same way as its close allies; it weakens the value of the dorsal approximation of first and second lines as a distinguishing characteristic, but the species still appears to be distinct; the reddish-ochreous tinge of ♂ helps to distinguish it from *isospora*, and the small size from *aruraea*.

Scotorythra homotrias Meyr. F. H. I. p. 176.

The description may be extended by the following particulars:

♂ ♀. 32—42 mm. Head, thorax, and abdomen in ♂ light fuscous, abdomen $1\frac{1}{5}$, segmental margins whitish. Antennal pectinations in ♂ 8—10, speckled and partially lined with black. Legs in ♂ dark fuscous, apex of joints ochreous-whitish, posterior tibiae fuscous mixed with ochreous-whitish, moderately dilated, enclosing an ochreous-whitish hairpencil, posterior tarsi $\frac{5}{6}$. Forewings in ♂ with termen rather obliquely rounded; colour as in ♀, but darker and more infuscated, first, median, and second lines darker, brown. Hindwings in both sexes with colour and lines usually as in forewings, but first line obsolete.

Twelve specimens, N.W. Koolau range, Oahu, in July and August. Previous type unique; it is a good and distinct species.

Scotorythra hecataea Meyr. F. H. I. p. 177.

The following particulars are supplementary:

♂ ♀. 29—39 mm. Head and thorax usually more or less tinged with pale purplish. Antennae in ♂ whitish, pectinations 5, laterally blackish-lined. Abdomen purplish-whitish, sometimes suffused with pale yellowish or sprinkled with dark fuscous, in ♂ $1\frac{1}{3}$. Posterior tibiae in ♂ rather dilated, enclosing an ochreous-whitish hairpencil, posterior tarsi $\frac{7}{8}$. Forewings with apex distinctly prominent, termen usually distinctly sinuate; varying much in colour, from pale ochreous to light ashy-fuscous, more or less strigulated (sometimes densely, sometimes very slightly) with dark fuscous, often suffusedly irrorated with ferruginous; first and second lines pale, but varying in colour with the ground; in very dark specimens the median line is obscured. Hindwings in ♂ paler and somewhat tinged with ochreous-whitish towards dorsum.

Nine specimens, N.W. Koolau range, Oahu, in April, July, and August. Previous type unique; the species is very variable, but remains easily distinguishable.

Scotorythra dissotis, sp. nov.

♂ ♀. 33—37 mm. Head and thorax whitish-fuscous, partly suffused with pale ochreous, collar partly blackish. Antennae ochreous-whitish spotted with blackish, pectinations in ♂ 8, irregularly blotched with blackish. Abdomen light fuscous with lateral blackish marks, in ♂ $1\frac{1}{3}$, with small expansible ventral hairpencil before middle. Legs whitish-ochreous spotted with dark fuscous, posterior tibiae in ♂ dilated, enclosing an ochreous-whitish hairpencil, posterior tarsi in ♂ $\frac{4}{5}$. Forewings elongate-triangular, termen strongly waved, bowed, rather oblique; brown, ochreous-brown, or golden-ochreous, more or less mixed with whitish, and strigulated with black; first and second lines double, strong, black, intersected by pale veins, first obtusely angulated in middle, second sinuate inwards above middle and more strongly towards dorsum, more or less interrupted, especially on posterior gemination; discal spot large, transverse-oval, blackish, enclosing ochreous-whitish transverse vein, placed on median shade, which is generally indicated only by two or three cloudy blackish spots; costal half between first and median lines, and a band beyond second line usually paler and mixed with whitish suffusion; subterminal line obscure, whitish or ochreous-whitish, waved-dentate. Hindwings with termen rather strongly waved, rounded; grey; a small darker discal spot; a postmedian series of darker dots.

Eleven specimens, N.W. Koolau range, Oahu, in July. Allied to *S. trapezias*, which it may follow, but easily distinguished by obtuse (not acute) angulation of first line, well-marked black discal spot, and other points.

Scotorythra metacrossa, sp. nov.

♂ 23—27 mm., ♀ 30 mm. Head and thorax ochreous-brown mixed with darker. Antennae whitish-ochreous spotted with dark fuscous, pectinations in ♂ 6, irregularly blotched with dark fuscous. Abdomen whitish-ochreous, towards base sprinkled with dark fuscous, in ♂ $1\frac{1}{4}$. Legs pale brownish-ochreous spotted with dark fuscous, posterior tibiae in ♂ dilated, enclosing an ochreous-whitish hairpencil, posterior tarsi in ♂ $\frac{4}{5}$. Forewings elongate-triangular, termen faintly waved, bowed, oblique; ferruginous-brown, partially sprinkled with whitish-ochreous, and irregularly strewn with short blackish strigulae; first and second lines well-defined, dark fuscous, first acutely angulated above middle, second waved, partially interrupted, indistinctly sinuate inwards above middle and towards dorsum; discal spot rather large, crescentic-oval, irregularly outlined with dark fuscous or blackish, centre sometimes mixed with whitish-ochreous; median shade sometimes darker, traversing this spot, but usually obsolete; subterminal line pale, dentate, more or less nearly obsolete, partially edged with dark suffusion, especially above middle; a terminal series of blackish dots. Hindwings with termen unevenly rounded, hardly waved; pale grey; a postmedian series of darker dots.

Twelve specimens (including only one ♀), N.W. and S.E. Koolau range, Oahu, in July. Probably allied to *S. idolias* and *paludicola*, but differs in smaller size, deeper colour, blotched antennal pectinations, and other details.

Scotorythra oxyphractis Meyr. F. H. I. p. 181.

Two specimens, N.W. Koolau range, Oahu, in July and August.

Scotorythra paratactis, sp. nov.

♂ 23—25 mm., ♀ 26—32 mm. Head and thorax brownish more or less mixed with whitish-ochreous, on front of crown usually with a whitish-ochreous defined patch or fillet. Antennae whitish-ochreous, usually spotted with dark fuscous, pectinations in ♂ 6, blotched with dark fuscous. Abdomen pale whitish-ochreous sprinkled with fuscous, in ♂ 1½. Legs ochreous-whitish spotted with dark fuscous, posterior tibiae in ♂ dilated, enclosing an ochreous-whitish hairpencil, posterior tarsi in ♂ almost 1. Forewings elongate-triangular, termen hardly waved, bowed, rather oblique; pale fuscous, pale brown, ochreous-brown, or (in one ♀) pale yellow-ochreous, more or less strigulated with dark fuscous (in the yellow-ochreous specimen very obsoletely); first and second lines represented by thick undefined darker shades, first bent above middle, second somewhat bisinuate; in the darkest specimen these include a little whitish suffusion; discal spot large, undefined, darker; subterminal line obsoletely indicated by cloudy darker margin, more suffused terminally; a terminal series of blackish dots. Hindwings with termen unevenly waved; whitish-fuscous, strigulated with grey; an irregular entire dark grey postmedian line, sometimes faint or obsolete; termen sometimes darker-suffused.

Five specimens, Waianae coast, Oahu, in January; two of these bred from larvae. Very variable in colour, and intensity of markings; perhaps nearest *S. triscia*, but easily distinguished by the smaller size, absence of median line of forewings, and variability.

Scotorythra triscia Meyr. F. H. I. p. 182.

I have recorded this from Maui.

Scotorythra nephelosticta Meyr. F. H. I. p. 183.

The Oahu examples of this species form a distinct geographical race, for which I propose the name *cocytias*, characterised as follows:

♂ 30—33 mm., ♀ 34—40 mm. Smaller and darker than type, forewings almost wholly suffused with dark fuscous, but the two brownish bands usually perceptible; discal spot often obsolete, but in one specimen white, pearshaped.

Seventeen specimens, N.W. Koolau range, Oahu, in April, July, and August. I do not think this can be regarded as a species, since extreme forms barely differ from typical *nephelosticta*, but the ordinary examples are distinct enough; it is in fact a geographical form which is on the verge of becoming a species by the elimination of the reversionary tendency.

Scotorythra pachyspila Meyr. F. H. I. p. 185.

Two specimens, N.W. Koolau range, Oahu.

Scotorythra diceraunia Meyr.

Scotorythra diceraunia Meyr. Ent. Mo. Mag. xxxvi. (1900), 258.

Eight specimens, N.W. and S.E. Koolau range, Oahu, in July and August. Previously recorded from Molokai; I have pointed out (*l.c.*) that the specimen erroneously assigned as the ♀ of *goniastis* is really this species.

Scotorythra brachytarsa Meyr. F. H. I. p. 187.

Nineteen specimens, N.W. Koolau range, Oahu, in May, July, and August.

Scotorythra rara, Butl. Meyr. F. H. I. p. 187.

Fifty-two specimens, N.W. Koolau range, Oahu, in July. I have succeeded in perceiving a good specific distinction between the females of this species and *brachytarsa* in the character of the discal spot, which in *rara* is much broadened with dark fuscous suffusion, whilst in *brachytarsa* it is quite narrow; this distinction is easily apparent when once grasped, and holds in the males also, but these can always be separated by structure.

Scotorythra leptias, sp. nov.

♂. 36 mm. Head and thorax fuscous. Antennae whitish-ochreous, spotted with dark fuscous, pectinations 7, lined with blackish. Abdomen 1½, pale fuscous. Legs whitish-ochreous spotted with fuscous, posterior tibiae paler, dilated, posterior tarsi ½. Forewings rather elongate-triangular, termen waved, bowed, rather oblique; fuscous, thinly sprinkled with short dark fuscous strigulae; veins partially finely ochreous-whitish; costal edge ochreous-whitish from base to beyond middle; first and second lines slender, brown, dotted with dark fuscous, first obtusely angulated above middle, second somewhat sinuate inwards above middle and more markedly towards dorsum; discal spot crescentic, narrow, whitish, edged with dark fuscous, placed on a faint brown median line; subterminal line obscurely indicated by some cloudy posterior spots of dark suffusion; a terminal series of dark fuscous dots. Hindwings with termen rounded, waved; grey, paler towards base, sprinkled with some fine blackish scales; a postmedian waved line marked with dark fuscous dots.

One specimen, N.W. Koolau range, Oahu, in August. Much smaller than *S. brachytarsa*, with the forewings relatively shorter and broader; the pale costal edge is characteristic.

Scotorythra euryphaea Meyr. F. H. I. p. 188.

Nine specimens, N.W. Koolau range, Oahu, in August.

ACRODREPANIS Perk.

Face rough-haired. Tongue developed. Antennae in ♂ bipectinated, simple towards base and on apical $\frac{2}{5}$. Palpi rough-scaled. Thorax densely hairy beneath. Abdomen rather stout, laterally fringed with shaggy hairs. Femora, tibiae, and first joint of tarsi hairy, posterior tibiae without internal hairpencil in ♂. Forewings: 10 and 11 separate, 10 connected with 9. Hindwings normal, in disc and towards dorsum clothed with long hairs.

Separated from *Scotorythra* by the structure of the legs, otherwise closely related to the larger and probably more primitive forms of that genus.

Acrodrepanis megalophylla, Meyr.

Scotoryrthra megalophylla Meyr. F. H. I. p. 189.

♂, *Acrodrepanis nesiotis* Perk. Ent. Mo. Mag. xxxvii. (1901), 252.

The special characters of the male are as follows:

♂. 56 mm. Antennal pectinations 4, spotted with dark fuscous (not lined as stated by Mr Perkins). Abdomen 1. Posterior tarsi 1. Forewings with lines purple, much stronger than in ♀.

Mr Perkins' type seen; N.W. Koolau range, Oahu, at 2000 feet, in August. I have no doubt whatever that this is the other sex of my *megalophylla*.

LYCAENIDAE.

LYCAENA Fab.

Lycaena baetica, Linn. Meyr. F. H. I. p 194.

Eleven specimens, Honolulu, Oahu, in January and February.

Lycaena blackburni, Tuely. Meyr. F. H. I. p. 194.

Seven specimens, Honolulu, Oahu.

PHYCITIDAE.

GENOPHANTIS Meyr.

Genophantis iodora Meyr. Cf. F. H. I. p. 195.

Six specimens, Waialua, N.W. Koolau range, and Honolulu, Oahu, in January, July, and August.

HOMOEOSOMA Curt.

Homoeosoma humeralis, Butl. Meyr. F. H. I. p. 196.

Ten specimens, N.W. Koolau range, Oahu, in July.

Homoeosoma amphibola Meyr. F. H. I. p. 197.

Three specimens, N.W. Koolau range, Oahu.

CRAMBIDAE.

Euchromius Guen.

Euchromius ocelleus, Haw. Meyr. F. H. I. p. 197.

One specimen, Honolulu, Oahu, in June.

Talis Guen.

Talis homodora Meyr. F. H. I. p. 199.

Twenty specimens, coast near Honolulu, Waianae coast, and plateau between Waianae and Koolau ridges, Oahu, in January and February.

Talis hydrophila, Butl. Meyr. F. H. I. p. 199.

Ten specimens, N.W. Koolau range, Oahu, at 1500—2000 feet, in April and August.

Talis floricolans, Butl. Meyr. F. H. I. p. 200.

Twenty-three specimens, N.W. coast of Oahu.

PYRAUSTIDAE.

Nymphula Schranck.

Nymphula fluctuosalis Zell. Meyr. F. H. I. p. 200.

Three specimens, N.W. coast, N.W. Koolau range, and Honolulu, Oahu, in May, June, and August.

Hyperectis, gen. nov.

Face rounded-prominent; ocelli present; tongue developed. Antennae over 1, in ♂ serrulate, pubescent-ciliated, basal joint short. Labial palpi moderate, curved, ascending, second joint thickened with dense rather rough scales, terminal joint very short, obtuse. Maxillary palpi rudimentary. Thorax smooth, patagia in ♂ forming an expansible tuft of hairscales. Abdomen in ♂ extremely long, slender, anal tuft normal. Legs very long, slender, middle tibiae little thickened, posterior tibiae with outer middle-spur nearly as long as inner. Forewings: 4 and 5 approximated towards base, 8 and 9 stalked, 10 closely approximated to 9 towards base. Hindwings 1; 3, 4, 5 approximated at base, 7 out of 6 near origin, anastomosing with 8 to middle; in ♂ on under-surface with a bladder-like swelling beneath base of costa.

This genus appears to belong to the *Stenia* group, and is quite remote from any other Hawaiian insect; hence I thought it might be an introduced exotic form, but it seems amply distinct structurally from anything described, and Prof. J. B. Smith, to whom I sent a drawing and particulars on the chance of its being an American insect, returned it as unknown to him. At present therefore it remains an isolated fact without explanation.

Hyperectis dioctias, sp. nov.

♂. 22 mm. Head, palpi, thorax, and abdomen light brownish-ochreous irrorated with dark fuscous. Antennae pale ochreous spotted with dark fuscous. Legs pale ochreous mostly suffused with dark fuscous, middle tibiae enclosing a tuft of whitish hairs in groove. Forewings very elongate-triangular, costa sinuate, posteriorly strongly arched, termen bowed, rather strongly oblique; whitish-ochreous, irrorated with pale ferruginous-ochreous and dark fuscous; first and second lines dentate, dark fuscous, first at $\frac{1}{4}$, curved, second at $\frac{3}{4}$, irregularly parallel to termen; orbicular and discal spots rather dark fuscous, orbicular roundish, constricted in middle, discal tolerably 8-shaped, followed by a patch of pale suffusion; terminal area darker-suffused, enclosing an irregular pale little-defined subterminal line; a terminal series of dark fuscous spots. Hindwings with ground colour, second line, and posterior markings as in forewings; first line indicated by dark suffusion; two small dark fuscous spots obliquely placed in disc.

One specimen, Jao valley, Maui, in September.

MARGARONIA Hüb.

Margaronia exaula, Meyr. Cf. F. H. I. p. 200.

Fourteen specimens, Honolulu and N.W. Koolau range, Oahu, in May, August, and December. Mr Perkins writes "destructive to native *Euphorbia* in the mountains; also feeds on introduced *Euphorbia* in gardens."

Margaronia cyanomichla Meyr. F. H. I. p. 201.

One specimen, N.W. Koolau range, Oahu.

OMIODES Guen.

Omiodes blackburni, Butl. Meyr. F. H. I. p. 202.

Two specimens, S.E. Koolau range, Oahu, in February.

Omiodes epicentra Meyr. F. H. I. p. 203.

Seventeen specimens, N.W. Koolau range and coast, Oahu, up to 2000 feet, in May, July and August.

Omiodes anastrepta Meyr. F. H. I. p. 204.

One ♂ (this sex not previously found), 31 mm.; forewings with median band below middle sprinkled with ferruginous; abdomen long, genital tuft large; otherwise not differing from ♀, but in rather poor condition: N.W. Koolau range, Oahu, in July.

Omiodes antidoxa, sp. nov.

♂. 24 mm. Head, thorax, and abdomen light fuscous, mixed with whitish, anal tuft mixed with dark fuscous. Palpi dark fuscous, lower half white. Forewings moderate, apex rather prominent, termen sinuate beneath it; light fuscous, mixed with whitish-ochreous; first line represented by a thick black streak from $\frac{1}{4}$ of dorsum to beneath discal spot, its upper edge very obtusely angulated-prominent beneath orbicular dot; a black orbicular dot, and small transverse-oval discal spot; second line obscurely pale, followed by a thick blackish posteriorly suffused streak, straight except towards costa, where it curves towards apex; a terminal series of blackish triangular dots. Hindwings fuscous, mixed with whitish-fuscous; a cloudy dark fuscous discal dot; a straight pale postmedian line, edged posteriorly with dark fuscous suffusion; an interrupted dark fuscous terminal line.

One specimen, N.W. Koolau range, Oahu, in July. Nearest to *O. anastrepta*, but notably smaller, and the angulation of anterior black streak is very obtuse, whilst in *anastrepta* it is nearly rectangular.

Omiodes accepta, Butl. Meyr. F. H. I. p. 204.

Fifteen specimens, N.E. and S.W. Koolau range.

Omiodes continuatalis, Wall. Meyr. F. H. I. p. 205.

Three specimens, N.W. Koolau range, Oahu, in July.

Omiodes monogramma Meyr. F. H. I. p. 205.

Two specimens, N.W. Koolau range, Oahu, in August.

Omiodes demaratalis, Walk. Meyr. F. H. I. p. 205.

Seventeen specimens, N.W. Koolau range and Waialua, Oahu, in July.

Omiodes localis, Butl. Meyr. F. H. I. p. 206.

Five specimens, N.W. Koolau range, Oahu.

HYMENIA Hüb.

Hymenia recurvalis, Fab. Meyr. F. H. I. p. 206.

One specimen, N.W. Koolau range, Oahu, in July.

PHLYCTAENIA Hüb.

Phlyctaenia synastra Meyr. F. H. I. p. 208.

One specimen, S.E. Koolau range, Oahu.

Phlyctaenia monticolans, Butl. Meyr. F. H. I. p. 211.

Three specimens, N.W. and S.E. Koolau range, Oahu, in July and August.

Phlyctaenia nigrescens, Butl. Meyr. F. H. I. p. 211.

Two specimens, N.W. Koolau range, Oahu.

Phlyctaenia micacea, Butl. Meyr. F. H. I. p. 212.

Two specimens, S.E. Koolau range, Oahu.

Phlyctaenia stellata, Butl.

Melanomecyna stellata Butl. Ent. Mo. Mag. xix. 179; *Scopula stellata* Meyr. Trans. Ent. Soc. Lond. 1888, 222.

I find this to be a good species, which I subsequently wrongly united with *ennychioides* (cf. vol. I. p. 216). The distinguishing characters are as follows:

17—25 mm. Forewings with first and second lines much more suffused, second line with pale posterior edging reduced to a series of whitish dots, one in subcostal indentation especially conspicuous (whereas in *ennychioides* it forms a uniform uninterrupted though obscure whitish-ochreous line); orbicular and discal spots wholly uniform dark fuscous (in *ennychioides* less dark centrally, darker-outlined); cilia without ochreous-whitish bars on apical half.

Six specimens, N.W. Koolau range, Oahu, at 2000 feet, in July and August. Also occurs (from previous specimens and records) at Olaa, Hawaii, and Kaholuamano, Kauai, in January, April, and October. My error in confusing this species with *ennychioides* was due to my having mixed unset examples of *lampadias* amongst them; when this species was isolated, the other two became easily distinguishable.

Phlyctaenia ennychioides, Butl. Meyr. F. H. I. 216 (pars).

The distinctions of this insect from the preceding and following are given under those species respectively; my description, Faun. Haw. I. 216, includes all three. No specimens were included in the present consignment; previous records are from Waianae Mts, Oahu, and Kaholuamano, Kauai.

Phlyctaenia lampadias, sp. nov.

♂♀. 22—25 mm. Head, palpi, and thorax rather dark fuscous, palpi 2½—3. Abdomen fuscous, segmental margins whitish. Forewings rather dark fuscous, somewhat mixed partially with pale ochreous suffusion; first and second lines suffused, dark fuscous, first bent in middle, interrupted above middle and beneath costa, second waved, abruptly broken inwards at $\frac{2}{3}$ to beneath discal spot, indented outwards near dorsum, interruptedly edged posteriorly with whitish-ochreous forming distinct spots near and on dorsum; roundish orbicular and 8-shaped discal spots suffused with dark fuscous, discal sometimes pale-centred, sometimes separated by a spot of pale suffusion; costa posteriorly more or less spotted with dark and pale; a terminal series of sharply marked alternate quadrangular dark fuscous and ochreous-whitish spots: cilia fuscous, mixed or obscurely barred with ochreous-whitish, with dark fuscous basal line. Hindwings whitish-fuscous, more fuscous posteriorly; two obliquely placed dark fuscous discal spots; a faint grey postmedian line; a terminal series of dark fuscous marks separated by pale dots; cilia fuscous mixed with whitish.

Five specimens previously received; Kilauea, Hawaii; Haleakala, Maui, at 5000 feet; and received without locality (not improbably Maui) from Mr Blackburn; in April and August. This species (included under *ennychioides* in both my descriptions) is separable from both *ennychioides* and *stellata* by the whitish-fuscous hindwings; the distinct whitish-ochreous spots towards dorsum beyond second line, and the characteristic quadrangular terminal spots, are also distinguishing features.

Phlyctaenia despecta, Butl. Meyr. F. H. I. p. 217.

Twelve specimens, N.W. and S.E. Koolau range, Oahu.

Phlyctaenia endopyra Meyr. F. H. I. p. 219.

One specimen, N.W. Koolau range, Oahu, in August.

PYRAUSTA Schranck.

Pyrausta constricta, Butl.; Meyrick F. H. I. p. 224.

Additional particulars are:

♂ ♀. 19—25 mm. Varies considerably in development of reddish tinge and distinctness of markings; lower half of discal spot sometimes dark fuscous; in ♀ markings sometimes all very indistinct and obscure. Anastomosis of veins 9 and 10 of forewings is usual but not constant.

Fourteen specimens, N.W. Koolau range, Oahu, in April, May, July, and August.

MECYNA Steph.

Mecyna aurora, Butl. Meyr. F. H. I. p. 225.

Six specimens, N.W. Koolau range, Oahu, in August; no locality for this species was previously recorded.

EVERGESTIS Hüb.

(1) *Evergestis anastomosalis* Guen.

One specimen, Honolulu, Oahu, in February. Not previously recorded; it is an Indo-Malayan insect, artificially introduced, probably quite recently.

NOMOPHILA Hüb.

Nomophila noctuella, Schiff. Meyr. F. H. I. p. 227.

One specimen, N.W. Koolau range, Oahu, in July.

HELLULA Guen.

Hellula undalis, Fab. Meyr. F. H. I. p. 227.

Five specimens, Waianae coast and N.W. Koolau range, Oahu, in January and August.

MESTOLOBES Butl.

Mestolobes xanthoscia Meyr. F. H. I. p. 230.

Three specimens, S.E. Koolau range, Oahu, in July.

Mestolobes minuscula, Butl. Meyr. F. H. I. p. 233.

Two specimens, Koolau range, Oahu; one, Jao valley, Maui.

Mestolobes semiochrea Butl. Meyr. F. H. I. p. 238.

Eleven specimens, S.E. Koolau range, Oahu, in July.

Mestolobes abnormis, Butl. Meyr. F. H. I. p. 239.

Seven specimens, N.W. and S.E. Koolau range, Oahu, in May, July, and August.

Mestolobes autodoxa Meyr. F. H. I. p. 239.

Eight specimens, N.W. and S.E. Koolau range, Oahu, in July and August. The palpi vary to pale ochreous-yellowish.

Mestolobes antichora, sp. nov.

♂ 16 mm., ♀ 14 mm. Head, palpi, and thorax fuscous, mixed with pale ochreous and whitish. Abdomen dark fuscous, mixed with whitish, especially in ♂. Legs ochreous-whitish, anterior and middle pair banded with dark fuscous, posterior tibiae in ♂ with brush of projecting blackish scales on apical half above. Forewings brown, in ♀ suffusedly mixed with dark fuscous; first and second lines slender, well-defined, ochreous-white, partially edged with dark fuscous, first curved above middle, second with middle third curved outwards; in ♀ an indistinct whitish shade following first line and one on costal half of wing preceding second, and some spots of whitish suffusion towards base; a cloudy dark fuscous discal dot; a terminal series of dark fuscous spots: cilia fuscous, obscurely barred with ochreous-whitish, with a dark fuscous line. Hindwings in ♂ white, with a dark fuscous fascia on upper half of termen confluent with a patch of dark fuscous suffusion in posterior part of disc, in ♀ fuscous, darker posteriorly, irregularly mixed with white suffusion in disc; in ♂ a rather long whitish dorsal lobe, terminated by a tuft of whitish hairs with tips blackish, no costal hairpencil; cilia ochreous-whitish, in ♂ with basal half dark grey on terminal fascia, in ♀ fuscous round apex and with darker fuscous basal line.

Two specimens, S.E. Koolau range, Oahu, in July. Allied to *abnormis* and *autodoxa*, but larger, and differing from both in the absence of the costal hairpencil of ♂; in the character of the dorsal lobe it is intermediate between the two, in the tibial brush it resembles *abnormis*. It is remarkable that these three rather nearly related species, which might have been expected to be representative forms on different islands, are all apparently restricted to the small island of Oahu, where they occur together in the same locality.

ORTHOMECYNA Butl.

Orthomecyna crossias Meyr. F. H. I. p. 242.

One specimen, S.E. Koolau range, Oahu, in July.

Orthomecyna mesochasma Meyr. F. H. I. p. 244.

One specimen, Lihue, Kauai.

SCOPARIA Haw.

Scoparia rhombias Meyr. F. H. I. p. 249.

Two specimens, N.W. Koolau range, Oahu, in July.

Scoparia balanopis Meyr. F. H. I. p. 250.

Ten specimens, N.W. and S.E. Koolau range, Oahu.

Scoparia gonodecta, sp. nov.

Scoparia mesoleuca Meyr. Faun. Haw. I., 252, nec Trans. Ent. Soc. Lond. 1888, 237.

Sufficiently described (*l.c.*), and locality correctly quoted; I originally described *mesoleuca* from an example received from Mr Blackburn without locality; subsequently getting a series of *gonodecta* from Kauai, I took it for the same species and redescribed it from these; having now obtained a series of the true *mesoleuca* from Oahu, I find the two species to be constant and distinct; the distinction is indicated below.

Scoparia mesoleuca Meyr.

Scoparia mesoleuca Meyr. Trans. Ent. Soc. Lond. 1888, p. 237; Fauna Hawaiiensis I. p. 252.

♂ ♀. 14—16 mm. Head ochreous-white. Palpi black, base and tips white. Thorax ochreous-white, a spot on shoulders and a central dorsal spot black. Abdomen brownish-ochreous, segmental margins white. Forewings ochreous-white; a broad black oblique basal fascia, enclosing an ochreous-white basal dot; a broad black oblique fascia from about $\frac{2}{5}$ of costa to middle of dorsum, abruptly narrowed dorsally, slenderly connected in middle with subbasal fascia; a moderately broad oblique black bar from costa about $\frac{2}{3}$, reaching half across wing, confluent beneath with following fascia, their combined anterior edge forming a straight line; a broad black subterminal fascia, including a white costal dot; a terminal series of black dots, connected in middle with subterminal fascia by a black spot: cilia white. Hindwings pale grey, darker terminally, more whitish basally; an indistinct darker discal spot; cilia grey-whitish, with grey subbasal shade.

Twelve specimens, N.W. and S.E. Koolau range, Oahu, in July and August; original type from Mr Blackburn, without locality. Nearest to *gonodecta*, and falls under same head in tabulation; easily distinguished by anterior edge of combined postmedian costal bar and subterminal fascia forming an unbroken straight line throughout, whereas in *gonodecta* it is broadly triangularly indented by ground colour in middle.

Scoparia catactis, sp. nov.

♂ ♀. 13—16 mm. Head and thorax blackish mixed with whitish. Palpi blackish, base whitish. Abdomen fuscous, anal tuft ochreous-whitish. Forewings white or ochreous-white, sprinkled with black; an irregular oblique black almost basal fascia, narrowed on costa; first line curved, oblique, white, more or less distinctly doubled, posteriorly edged with a narrow black fascia; orbicular and claviform small, roundish, black, separate, vertically placed; discal X-shaped, black, connected with costa by a narrow black bar; second line white, more or less blackish-edged anteriorly towards costa, terminal area beyond this blackish; subterminal line white, distinct, connected with second line in middle, interrupted above this; a terminal series of white dots: cilia white, indistinctly barred with blackish, with a blackish antemedian line. Hindwings fuscous, becoming darker posteriorly; sometimes a distinct darker discal dot; cilia whitish-fuscous, with fuscous subbasal line.

Twenty-seven specimens, N.W. and S.E. Koolau range, Oahu, in July and August. To this species also belong the specimens previously recorded as *ombrodes* from Waianae Mts, Oahu, in April. I confused this species with *ombrodes* in my description (Faun. Haw. I., 260); it is whiter, with much less black irroration, and the black markings are considerably narrower and less developed; the acquisition of a good series proves it to be constant, and it is apparently restricted to Oahu.

Scoparia ombrodes, Meyr.

Xeroscopa ombrodes Meyr. Trans. Ent. Soc. Lond. 1888, 234: *S. ombrodes* (pars) id. F. H. I. p. 260.

♂ ♀. 14—16 mm. Head and thorax blackish mixed with whitish. Palpi blackish, base whitish. Abdomen fuscous, segmental margins whitish, anal tuft in ♂ ochreous. Forewings white, suffusedly mixed with black; a more or less undefined irregular oblique black almost basal fascia, narrowed on costa; first line white, slightly curved, oblique, more or less distinctly doubled, posteriorly edged with a band of blackish suffusion; orbicular and claviform roundish, rather large, black, more or less confluent with this band; discal suffusedly 8-shaped, black, connected with costa by blackish suffusion, lower half filled with white; second line white, edged with black anteriorly, terminal area beyond this black; subterminal line irregular, white, indistinctly connected with second in middle, interrupted above this; a terminal series of white dots: cilia whitish, more or less barred with fuscous, with a dark fuscous antemedian line. Hindwings fuscous, towards base whitish-tinged, darker terminally; cilia whitish-fuscous, with fuscous subbasal line.

Owing to the confusion mentioned above, I have redescribed this species. The recorded localities from Lanai, Molokai, and Hawaii are apparently correct; but the Kauai specimens I now refer to *demodes*.

Scoparia ianthes Meyr. F. H. I. p. 261.

Twenty-one specimens, N.W. Koolau range, Oahu, in July and August. Varies in development of white median markings of forewings, which often form a more or less entire white median fascia.

Scoparia marmarias Meyr. F. H. I. p. 261.

Four specimens, N.W. Koolau range, Oahu, in July

Scoparia bucolica Meyr. F. H. I. p. 263.

Two specimens, N.W. and S.E. Koolau range, Oahu.

Scoparia pyrseutis Meyr. F. H. I. p. 263.

One specimen, N.W. Koolau range, Oahu, in July. The first line of forewings is less straight than in the original examples, but otherwise there is no obvious difference.

Scoparia hawaiensis Butl. Meyr. F. H. I. p. 267.

Twenty-nine specimens, N.W. Koolau range, Oahu, in August. The average size of these is rather small.

Scoparia demodes, Meyr. F. H. I. p. 268.

As mentioned above, the Kauai specimens previously quoted under *ombrodes* are properly referable here.

Scoparia geraea Meyr. F. H. I. p. 269.

Four specimens, N.W. Koolau range, Oahu, in July and August.

Scoparia melanopis, Meyr. F. H. I. p. 271.

Two specimens, N.W. and S.E. Koolau range, Oahu, in August.

Scoparia meristis Meyr. F. H. I. p. 272.

Four specimens, N.W. and S.E. Koolau range, Oahu. These specimens are easily distinguished from *halmaea* by the straighter and more strongly oblique first line; Molokai specimens are quite similar, but those from Hawaii do not show this so distinctly.

Scoparia halmaea Meyr. F. H. I. p. 272.

Eighteen specimens, N.W. and S.E. Koolau range, Oahu, in July and August. The orbicular sometimes becomes an elongate black dash.

Scoparia religiosa, sp. nov.

♂ ♀. 11—13 mm. Head and thorax brown mixed with whitish. Palpi whitish, with a fuscous median band. Abdomen whitish-ochreous. Forewings white, irregularly irrorated with ochreous-brown and dark fuscous, sometimes clear in disc beyond middle; some ochreous-brown spots mixed with black in disc towards base; first line undefined, whitish, curved, oblique, indented in middle, edged posteriorly with dark suffusion; orbicular and claviform indicated by some dark scales, not defined or distinct; discal X-shaped, blackish, ill-marked, indistinctly connected with a spot of dark suffusion on costa above it; second line slender, white; terminal area suffused with dark ochreous-fuscous; subterminal line white, confluent with second in middle and interrupted above it; some white terminal marks: cilia grey-whitish, with dark fuscous subbasal line. Hindwings in ♂ whitish-grey, in ♀ pale grey, becoming rather dark grey terminally; cilia whitish, with grey subbasal line.

Five specimens, N.W. Koolau range, Oahu, in July and August. I have also one example from Hawaii (overlooked amongst *ombrodes* and *catactis*, from which it differs by the absence of the black subbasal fascia). In my tabulation it falls under the same head with *platyscia*, but is much smaller and less strongly marked.

PYRALIDIDAE.

PYRALIS Linn.

Pyralis mauritialis Boisd. Meyr. F. H. I. p. 275.

One specimen, S.E. Koolau range, Oahu, in July.

ADDENDUM.

Sir George Hampson (Cat. Lep. Phal. IV. 426) has described as a new species, *Agrotis coniotis*, the five specimens of those described by me (F. H. I. p. 151) as *chersotoides* Butl., which fell to the share of the British Museum. However, after considering his descriptions and figures, I see no reason to change my view that all were rightly included under *chersotoides*; one of my own examples exactly matches his figure of *chersotoides*. No doubt these variable species are hard to understand; but in this instance it must be remembered that I had before me eight additional specimens which Sir George Hampson has not seen.

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COLEOPTERA

CLERIDAE TO *HYDROPHILIDAE*

By D. SHARP and HUGH SCOTT

FAUNA HAWAIIENSIS

OR THE

ZOOLOGY OF THE SANDWICH (HAWAIIAN) ISLES:

Being Results of the Explorations instituted by the Joint Committee
appointed by

THE ROYAL SOCIETY OF LONDON FOR PROMOTING NATURAL KNOWLEDGE
AND THE BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

And carried on with the assistance of those Bodies and of the Trustees of

THE BERNICE PAUAHI BISHOP MUSEUM AT HONOLULU.

EDITED BY

DAVID SHARP, M.B., M.A., F.R.S.

SECRETARY OF THE COMMITTEE.

VOLUME III. PART V.

COLEOPTERA. III.

By D. SHARP and HUGH SCOTT.

Pages 367—579: *Plates XIII—XVI, uncoloured.*

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COLEOPTERA.

H. S. Barber, U. S. National Museum, Washington, D. C.

IV. COLEOPTERA (VARIOUS).

By D. Sharp and Hugh Scott[1].

Fam. CLERIDAE.

TARSOSTENUS Spinola.

Tarsostenus Spinola, Mon. Cleridae, I. 1844, p. 287.

(1) *Tarsostenus univittatus* Rossi.

Tarsostenus univittatus Rossi, Faun. Etr. Mant. I. p. 44.

This introduced species holds its place near Honolulu, but apparently does not extend its range.

HAB. Oahu: N.W. Koolau range VII. 1901; Waialua coast, V. 1901 (Perkins).

NECROBIA Latreille.

Necrobia Latreille, Préc. Car. gén. Ins. 1796, p. 35.

(1) *Necrobia rufipes* Fabricius.

Necrobia rufipes Fabricius, Spec. Ins. I. p. 65.

This and the following species are now nearly cosmopolitan.

HAB. Kauai, Oahu, Maui, Lanai, Hawaii.

(2) *Necrobia ruficollis* Fabricius.

Necrobia ruficollis Fabricius, Syst. ent. p. 57.

HAB. Kauai, Oahu, Maui, Lanai, Hawaii.

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[1] A large portion of this part was completed some years ago, but was put aside owing to my being unable to find time for the remainder. About a year ago I was so fortunate as to obtain the assistance of Mr Hugh Scott, to whom is due much of the concluding portion of this part. Mr Scott's actual contributions are distinguished by his name or initials being added. I have, however, to thank him for much assistance in preparing my own portions for press. D. S.

Fam. MALACODERMIDAE.

The two Insects of this family discovered by Mr Blackburn thirty years ago apparently hold their own at Honolulu, where both have recently been found by Mr Perkins. I suppose both of them to have been introduced, but they have not yet been found elsewhere, and it is within the bounds of possibility that they may have formed part of an old precinctive lowland Fauna now nearly extinct.

HELCOGASTER Boheman.

Helcogaster Boheman, Res. Eugen. 1858, p. 81.

(1) *Helcogaster pectinatus* Sharp.

Helcogaster pectinatus Sharp, Tr. Dublin Soc. III. 1885, p. 157, Pl. IV. fig. 20.

HAB. Oahu, Honolulu (Blackburn, Perkins). Occurs in numbers occasionally; about houses (Perkins).

CACCODES Sharp.

Caccodes Sharp, Tr. Dublin Soc. III. 1885, p. 157.

(1) *Caccodes debilis* Sharp.

Caccodes debilis Sharp, Tr. Dublin Soc. III. 1885, p. 157.

HAB. Oahu, Honolulu, scarce. Found in houses (Blackburn), but also found away from houses in planted forest (Perkins).

Fam. ELATERIDAE.

ADELOCERA Latreille.

Adelocera Latreille, Règn. anim. II. 1829, p. 401.

(1) *Adelocera modesta*, Boisduval.

Agrypnus modestus Boisduval, Voy. Astrolabe, Col. p. 108.

HAB. Oahu (Blackburn, Perkins). Polynesia.

CHALCOLEPIDIUS Eschscholtz.

Chalcolepidius Eschscholtz, Thon Arch. II. 1829, p. 33.

(1) *Chalcolepidius erythroloma* Candèze.

Chalcolepidius erythroloma Candèze, Mon. Elat. I. p. 282. *C. albertisi* Candèze, Bull. Soc. ent. Belgique, 1878, p. 55.

This fine Insect is apparently not very rare near Honolulu, but scarcely increases its range.

HAB. Oahu (Blackburn, Perkins), Chili and Ecuador.

[ISCHIODONTUS Candèze.

Ischiodontus Candèze, Mon. Elater. II. 1859, p. 90.

Ischiodontus hawaiiensis Candèze, Elater. nouveaux, fasc. 3, 1881, p. 42.

So far as we know, there is no *Ischiodontus* in the Sandwich Islands. From information received from Mr Gahan of the British Museum of Natural History, it appears certain that the insects in the Fry Collection, which Candèze described as *I. hawaiiensis*, were wrongly labelled as coming from the Sandwich Islands, the real locality being the Samoa Islands.]

SIMODACTYLUS Candèze.

Simodactylus Candèze, Mon. Elater. II. 1859, p. 169.

(1) *Simodactylus cinnamomeus* Boisduval.

Aeolus cinnamomeus Boisduval, Voy. Astrolabe, Col. p. 106.

HAB. Kauai, Oahu, Hawaii.—Kauai, Lihue, VII. 1896 (Perkins).—Oahu; (Blackburn), Kaala mts. (Perkins).—Hawaii, Kona, 1500 ft. VII. 1892 (Perkins).

MONOCREPIDIUS Eschscholtz.

Monocrepidius Eschscholtz, Thon Arch. 1829, II. 1, p. 31.

(1) *Monocrepidius exsul* Sharp.

Monocrepidius exsul Sharp, Ann. Nat. Hist. (4) XIX. 1877, p. 470.

This species has recently been introduced into the Hawaiian Islands. I have only one individual before me, and it differs a little from the New Zealand type in sculpture, and in the form of the sides of the thorax and of the apices of the elytra, but these differences scarcely go beyond the limits of variation. *M. exsul* is also, I believe, an introduction in the fauna of New Zealand, its native country being perhaps Australia.

HAB. Oahu (Koebele).

MELANOXANTHUS Eschscholtz.

Melanoxanthus Eschscholtz, Silb. Rev. IV. 1836, tabula.

(1) *Melanoxanthus melanocephalus* Thunberg.

Elater melanocephalus Thunberg, Nov. Ins. spec. III. 1784, p. 63.

HAB. Oahu: Honolulu (Blackburn, Perkins); Waianae Mts. 1700 ft. IV. 1892 (Perkins).

Eopenthes Sharp.

Eopenthes Sharp, Tr. Dublin Soc. III. 1885, p. 153.

This genus, though very closely allied to *Megapenthes*, had better be kept distinct. The characters are as follows. Front of head but little produced in the middle, feebly margined, closely approximate to the front margin of the epistome, but separated from it by a definite space. Trochanteral notch of the coxal cavity broad and very definite, usually projecting on each side as a sharp angle or spine. Antennae with second and third joints subequal: in the female about as long as the thorax, in the male about one-third or one-fourth longer. Elytra usually more or less spinose at tips.

North American species of *Elater* such as *E. carbonicolor* Eschscholtz appear on the whole to be the nearest allies, but as closely-allied forms are found all over the world, this is not of much importance.

The species are very difficult to distinguish, but perhaps the following table may prove of some assistance.

- *a.* Colour metallic .... Species 1 and 2
- *a'.* Colour not metallic.
  - *b.* Prosternal process not bent upwards behind the front coxae .... Species 3—5
  - *b'.* Prosternal process bent upwards behind the front coxae.
    - *c.* Tarsi notably thickened, fourth joint of hind feet not minute.
      - *d.* Prosternal process before the apex projecting as a sharp denticle ... Species 6—28
      - *d'.* Prosternal process before the apex not denticular .... Species 29
    - *c'.* Tarsi thickened, fourth joint of hind feet minute .... Species 30—33

(1) *Eopenthes caeruleus*, sp. nov.

Gracilis, caeruleus, nitidus, femoribus rufis, tibiis, tarsis antennisque nigris. Long. 8½—9¼ mm.

Narrow, of a beautiful blue colour, shining, with a scanty, rather long, black pubescence. The head and thorax are rather coarsely but not densely punctured, very shining: the thorax elongate and narrow, the posterior angles markedly divergent. Elytra deeply striate, but the striae posteriorly are evanescent; the apices rather strongly spinose. Tarsi elongate, the anterior and middle pairs distinctly incrassate.

Var. *molokaiensis*; paulo latior, subtilius punctata.

The species is so distinct by its colour that it is not necessary to discuss it. The series of about 20 specimens from Lanai vary but little. The 4 specimens from Molokai are slightly different but are not, I think, another species.

HAB. Lanai, Molokai.—Lanai: Halepaakai, VII. 1894; Lanaihale, VII. and VIII. 1894; Mts. Koele, 3000 ft. VII. 1894.—Molokai: Kalawao, VIII. 1893 (Perkins).

(2) *Eopenthes auratus*, sp. nov.

Auratus, nitidus, femoribus rufis, antennis, tibiis tarsisque nigris. Long. 10½ mm.

This scarcely differs from *E. caeruleus*, except in the golden brassy colour and the slightly broader form, so that the thorax appears more narrowed towards the front. The series of *E. caeruleus* is very constant in colour, so that I think *auratus* will prove distinct.

HAB. Molokai, 4000 ft. VI. 1896 (Perkins).

(3) *Eopenthes basalis* Sharp.

♀ *Eopenthes basalis* Sharp, Tr. Dublin Soc. III. 1885, p. 153.

E. basalis ex parte, Blackburn, t. c. bottom of p. 155.

Plate XIII. fig. 7, ♀.

This fine species is readily distinguished by the strongly acuminate and sharply spinose apices of the elytra, as well as by the form of the prosternal process (Plate XIII. fig. 10). In both these characters it is approached by *E. koebelei*. There is a distinct incrassation of the base of the front tarsi. My original description was made from a rather small female. I have now both sexes before me. They differ comparatively little, the antennae of the male being less elongate than usual, and extending very little beyond the angles of the thorax; it has the thorax coarsely and very densely punctured, and the 2nd and 3rd joints of the antennae rather shorter than they are in the female. The species is apparently very rare.

The remarks made by Blackburn (t. c. p. 155) about *E. basalis* refer really to *E. obscurus* ♀.

HAB. Oahu, Honolulu (Blackburn, Perkins); N.W. Koolau range; Mts. near Honolulu, 2000—3000 ft. (Perkins).

(4) *Eopenthes longicollis*, sp. nov.

♂ Nigerrimus, haud nitidus, pube pallida ac brevi vestitus, fortiter sculpturatus; elytrorum apicibus spinosis. Long. 10½ mm.

A remarkably distinct species, of elongate form, with very dense sculpture; the punctures on the thorax are large and are crowded as closely as can be; the striation of the elytra is remarkably deep, and the apices are more conspicuously spinose than in any other species except *E. basalis*: the antennae are largely developed and elongate: the prosternal process is to a certain extent an approximation to that of *E. basalis*, but is really very little different from that of the ordinary species of the genus except that it is rather less bent up behind the coxae, and the denticle is larger. The species seems to connect the very distinct *E. caeruleus* with *basalis* and *koebelei*.

We have only two specimens, they are both males, but a specimen in the collection at the British Museum is a female, and has the antennae considerably shorter.

HAB. Kauai: Makaweli and Lihue, 2000—3000 ft. VI. 1894 (Perkins); Mountains of Kauai (Rev. Harper Pease, in Brit. Mus.).

(5) *Eopenthes humeralis* Karsch.

Elater humeralis Karsch, Berlin. ent. Zeitschr. XXV. 1881, p. 5, Pl. I. fig. 7.

♀. Niger, elytrorum basi late flava; prothorace dense punctato. Long. 13½, lat. 3½ mm.

This species cannot be confounded with any other, except possibly *E. basalis*, or large female *E. obscurus*. From *E. basalis* it is distinguished by the less attenuate apices of the elytra, by the black antennae, the basal joints not being paler than the others: and from *E. obscurus* by the more spinose apices of the elytra and by the prosternal process not being bent upwards behind the coxae.

I describe the species from a single female given me by Mr Koebele. Mr Perkins found a specimen of the male sex dead and entirely deprived of its antennae as well as of most of its legs. It has the thorax much more slender than that of the female (as is usually the case in *Eopenthes*), but in other respects agrees very well.

HAB. Maui (Koebele); Olinda (Dr Finsch); Haleakala, 3000 ft. VIII. 1894 (Perkins).

(6) *Eopenthes obscurus* Sharp.

♀. *Eopenthes obscurus* Sharp, Tr. Dublin Soc. III. 1885, p. 154, Pl. IV. fig. 19.

E. basalis ex parte, Blackburn, t.c. bottom of p. 155.

♂ Gracilis, fusco-niger, elytris summa basi flavescente, pedibus fuscis; prothorace dense ac fortiter punctato; corpore minus tenuiter pallido-pubescente. Long. 7½—12 mm., lat. 2—3¼ mm.

The species was described by me from a single female. The two sexes are extremely different, the male being a comparatively small and slender insect, with elongate antennae, and the pale colour of the elytra confined to a short area at the anterior declivity. Although the elytra in this sex are narrow at the tips—not broad as in the female—and form a sharp angle there, they cannot be called spinose.

The remarks made by Blackburn (t.c. p. 155) about *E. basalis* have reference really to *E. obscurus* ♀.

HAB. Oahu, near Honolulu (Perkins).

The species is well known from Oahu. We also have 5 specimens with the number 210, which refers to Kona on Hawaii. One of these specimens is however marked on the margins, "Oahu mts. 2000 ft. /97. K." I feel sure that the entry as to No. 210 is incorrect and that the species is confined to Oahu. Cf. remark under *E. divisus*.

(7) *Eopenthes kauaiensis*, sp. nov.

♀. Niger, sat nitidus, pallido-pubescens, elytrorum basi interdum rufescente, antennis fusco-rufis, pedibus rufis, tarsis fuscis; prothorace crebre fortiter punctato; elytris apicibus attenuatis, subspinosis. Long. 11 mm., lat. 3 mm.

Of this form we have only two rather discrepant females; it is not very near any species known from Kauai, and is apparently nearest to *E. konae* found at the other extremity of the Archipelago; it is rather larger and more robust, and has the thorax rather more coarsely and sparingly punctured; the front feet have a larger development of the fine clothing on their under surface; the elytra are, in one specimen, differently coloured; and they have the apices more spinose.

Hab. Kauai. High plateau, VIII. 1896; 4000 ft. VII. 1896 (Perkins).

(8) *Eopenthes germanus*, sp. nov.

♀. Fuscus, elytrorum basi vage rufescente, antennis pedibusque sordide rufis; prothorace elongato, crebre sat fortiter punctato; elytris apicem versus attenuatis, haud spinosis. Long. 13, lat. 3¾ mm.

A single specimen is very closely allied to *E. obscurus*, but differs in so many points that I must treat it as a different species. It is rather more elongate in form, with the elytra more attenuate posteriorly, the pubescence of the upper surface is shorter, finer and more scanty, the punctuation of the thorax is less dense and coarse, and the antennae are longer, with a longer third joint than in any other species; the thorax is considerably longer, and more narrowed in front than it is in the female of *E. obscurus*.

Hab. Oahu, near Honolulu (No. 786 Perkins).

(9) *Eopenthes pallipes*, sp. nov.

♀. Niger, nigro-pubescens, antennis pedibusque testaceis; prothorace lateribus subparallelis, parce punctato; tarsis gracilibus. Long. 8½, lat. vix 2½ mm.

We have only one example of this species, and it is extremely close to the corresponding sex of *E. cognatus*, so that the validity of the species is somewhat doubtful: it has however the tarsi quite simple and slender, without any dilatation of the basal joint; the antennae are more slender, and slightly longer, and the thorax is rather more parallel-sided; the colour of the legs is pale yellow, even the tarsi are quite yellow. The elytra are attenuate towards the tip and distinctly spinose.

Hab. Oahu, VIII. 1900 (Perkins).

(10) *Eopenthes politus*, sp. nov.

♀. Minus gracilis, nigerrimus, nitidus, antennis fusco-rufis, basi pedibusque rufo-testaceis; thorace parce subtiliterque punctato. Long. 8½, lat. 2½ mm.

Though we have only one specimen of this species it appears to be so distinct that I give it a name without reluctance. It is the most shining of the genus, and has the thorax most sparingly and finely punctured. It is very distinct from *E. mauiensis* ♀, having shorter legs and antennae besides the distinctions in form and sculpture. The elytra are not spinose at the tips, there is no trace of any dilatation of the tarsi, the prosternal process is strongly tuberculate, and the punctuation of the ventral segments is very sparing and obsolete.

HAB. Maui, Haleakala, 5000 ft. VI. 1896 (Perkins).

(11) *Eopenthes deceptor*, sp. nov.

♀. Nigerrimus, nitidus, pedibus flavis, tarsis fuscis; prothorace minus dense fere subtiliter punctato; elytris profunde striatis. Long. 8½ mm.

I describe this on a single female specimen. It is easily distinguished from *E. varians*, when that species has a similar coloration, by the more elongate form, and the less incrassated tarsi. It is most like *E. pallipes*, but is more shining, with a rather narrower thorax, and slightly thicker tarsi. The unique individual is not very well preserved; the pubescence is short and scanty, differing markedly from that of *E. varians*.

HAB. Molokai, above Pelekunu, VII. 1893 (Perkins).

(12) *Eopenthes perkinsi*, sp. nov.

Niger, thorace elytrisque rufis, sutura nigricante; thorace dense fortiter punctato; elytris profunde striatis, apicibus parum acuminatis. Long. 10—13 mm., lat. 2½—3½ mm.

Variat; antennarum, pedum, elytrorum, abdominisque colore nigro plus minusve desinente.

The male is much smaller than the female, and has longer, more highly-developed antennae and a denser punctuation of the thorax.

The markedly red colour of thorax and elytra and the black suture of the latter make this species recognisable at a glance.

The pubescence is pallid, but as it is shorter and finer than usual it is but little conspicuous. The hind angles in the male are but little directed outwards; in the female not at all. There is a slight dilatation of the three basal joints of the tarsi; the angle on the prosternal process is abrupt and well-marked, but does not project as a denticle or tubercle.

HAB. Oahu. Near Honolulu on several occasions; 2000—3000 ft. on one occasion (Perkins).

(13) *Eopenthes divisus*, sp. nov.

Niger, femoribus flavis, elytris dimidio basali pallido, tibiis vel flavis vel fusco-flavis; prothorace fortiter ac crebrius punctato. Long. ♂ 7—7¾ mm., ♀ 8—10 mm.

Readily recognisable by the coarse punctuation of the intensely black thorax, which is nevertheless shining, by the divided coloration of the elytra, and the brightly flavescent femora. In these characters it is approached by some of the varieties of *E. varians*, but that species has a marked dilatation of the tarsi, which is not the case in *E. divisus*, moreover the pallid colour of the base of the elytra is remarkably pale in *E. divisus*. The shape is rather peculiar, the insect being somewhat broad in the middle and much narrowed behind, so that the interstices of the elytra are broad in front but at the tip are very narrow: the actual tips are distinctly spinose. There is a slight dilatation of the base of the anterior tarsi, but not of the other two pairs.

HAB. Oahu, Honolulu, 2000 ft. in 1896 (Perkins).

Certain of the specimens are numbered 210, which refers to Kona in Hawaii. I feel convinced that this is erroneous, and that the species is really confined to the mountains of Oahu. Cf. remark under *E. obscurus*. Mr Perkins remembers finding this insect in Oahu.

(14) *Eopenthes konae* Blackburn.

Eopenthes konae Blackburn, Tr. Dublin Soc. III. 1885, p. 154.

We have a very large series of about 300 specimens of this species, which is very variable. In colour it passes from entirely black to light brown. The thorax is a good deal narrowed in front, the sides having usually a slightly concave curve. There is much pubescence on the thorax, usually of a pallid colour. The thorax is rather closely punctate but shining. The elytra are distinctly dehiscent at the tips, and minutely spinose. The length varies from 7½—11¼ mm. The male has the antennae rather longer than the female, about 2 joints extending beyond the hind angles of the thorax, while in the female they extend scarcely at all beyond the hind angle; the length in a moderate sized ♂ is about 4½ mm. There is a very slight development of the fine pubescence on the under surface of the basal three joints of the feet, and an extremely slight incrassation of these joints: the 4th joint of the hind foot is 2 or 3 times as long as it is broad.

HAB. Hawaii: Kilauea, on several occasions; Kona, 3000—5000 ft. on several occasions; Olaa on several occasions; Mauna Loa, 4000 ft. VII. 1892 (Perkins); Kona, 5000 ft. (Blackburn).

(15) *Eopenthes cognatus*, sp. nov.

Angustus, nigerrimus, nitidus, parce pubescens, pedibus flavis, tarsis tibiisque interdum fuscis; antennis vel flavis subfuscentibus, vel nigris basi fusco-flava; prothorace nitido, parce punctato; elytris subtiliter striatis. Long. 8, lat. 2 mm.

Narrower than *E. konae*, with the thorax more sparingly punctate, and the pubescence of the upper surface much less developed. The pubescence is black, so that it is concolorous with the surface. The legs of *E. konae* are never coloured like those of *E. cognatus*. Somewhat doubtfully distinct.

HAB. Hawaii: Kona, 3000 ft. VI. 1892; Kilauea, VII. 1895; Olaa, VI. 1895 and IX. 1896 (Perkins).

(16) *Eopenthes celatus*, sp. nov.

Rufescens, capite, thorace, corpore subtus antennisque nigricantibus; pube pallida conspicue vestitus; prothorace sat crebre punctato; elytris apicibus haud spinosis; antennis pedibusque elongatis. Long. 9 mm.

We have only two individuals—males—of this species: it appears to be most like *E. konae*, but the elytra are not spinose at the tip, and the antennae and tarsi are rather more elongate. Except for slight and unimportant differences in colour etc. it agrees in most other respects with *E. konae*.

HAB. Molokai, Kalawao, 8. VIII. 1893 (Perkins).

(17) *Eopenthes gracilis*, sp. nov.

Angustus, nigerrimus, nitidus, nigro-pubescens, femoribus rufis; prothorace nitido, disco parce punctato. Long. 9½, lat. 2 mm.

Extremely close to *E. konae*, but distinguished from all the varieties of that species by the more slender form, and the scanty punctuation of the middle of the thorax. It is of an intense black colour, and shining; the thorax has the sides moderately divergent behind, very little sinuate, the scanty pubescence detracting but little from the shining and intensely black appearance of the surface. The antennae of the male are slightly broader and longer than those of the male *E. konae*. The reddish yellow femora contrast strongly with the quite black tibiae. The under surface is rather more finely and scantily punctate than it is in *E. konae*.

HAB. Molokai, Kalawao; mts. VI. 1896 (Perkins).

(18) *Eopenthes mauiensis*, sp. nov.

Nigerrimus, nitidus, nigro-pubescens, femoribus flavis, tibiis ante apicem vage flavescentibus; prothorace nitido, parce punctato; elytris profunde striatis. Long. 10 mm., lat. 3 mm.

Rather broader than *E. gracilis*, with thicker and rather longer antennae, and more deeply striated elytra. Resembles *E. cognatus* slightly, but is quite distinct. Five specimens.

HAB. Maui, Haleakala, 5000 ft. V. 1896 (Perkins).

(19) *Eopenthes unicolor*, sp. nov.

Nigerrimus, nigro-pubescens, sat nitidus, thorace sat fortiter punctato; tarsis gracilibus, articulo quarto haud abbreviato; elytris sat profunde striatis. Long. 7—8 mm.

Resembles the variety of *E. cognatus* with dark legs very closely; but in addition to having the legs and base of the antennae completely black, it has shorter antennae and a differently shaped thorax, this being less elongate and parallel-sided, with the hind angles more distinctly directed outwards. In *E. unicolor* the apices of the elytra are not spinose. This character and the quite simple tarsi completely separate the species from *E. funebris*, which is similar in colour and size and is also a Kauian species. We have only two males of *E. unicolor*.

HAB. Kauai, 4000 ft. VII. 1896 (Perkins).

(20) *Eopenthes funebris*, sp. nov.

Nigerrimus, gracilis, parum convexus, nitidus, nigro-pubescens, prothorace gracili, fortiter minus dense punctato, antennis pedibusque elongatis, tarsis anterioribus articulis bene dilatatis, articulo quarto brevi; elytris profunde striatis. Long. 8 mm.

Though very similar to *E. cognatus*, this is readily distinguished by the more coarsely punctured thorax, and the considerably shorter fourth joint of the tarsi; this last character is correlative with an evident incrassation of the basal joints. There is no doubt of the distinctness of this insect, though we have only two male specimens.

HAB. Kauai, mts. Waimea, 3000 ft. VI. 1894; high plateau, VIII. 1896 (Perkins).

(21) *Eopenthes plebeius*, sp. nov.

Rufus, plus minusve infuscatus, vix nitidus, pube elongata pallida vestitus; prothorace crebre fortiter punctato, angulis posterioribus evidenter divergentibus; elytrorum marginibus saepe dilutioribus. Long. 9—9¾ mm.

We have six examples of this species, all of which are males. It appears to be variable as to colour, but not in a definite (or racial) manner. One of its most conspicuous characters is the pallid pubescence, which is longer and more conspicuous than usual. The head is never quite black. The punctuation of the thorax is rather dense and coarse; the elytra are deeply striate, and the punctuation of the interstices makes them rough; the apices have no spine, or only a minute trace of one, at the tips. The legs and antennae are elongate.

The parts of the body are more or less infuscate. In the example with greatest development of this dark colour, the thorax is nearly entirely black: the insect then resembles the male of *E. obscurus*, but the side margins of the elytra as well as the base remain pale, and the pubescence of the surface is very different. It is considerably larger than *E. satelles* of the same island and has not a definitely black head and thorax.

HAB. Lanai. Lanaihale; above Koele; Halepaakai; July, 1894 (Perkins).

(22) *Eopenthes arduus*, sp. nov.

Rufescens, nitidus, pube pallida minus conspicue vestitus, capite nigricante, antennis fusco-rufis; prothorace sat crebre minus fortiter punctato; elytris profunde striatis, apicibus minus attenuatis, minute spinosis. Long. 7½—8½ mm.

We have one male and three females of this species; it is very difficult to distinguish by good characters from either *E. antennatus* or *E. ambiguus*, but I believe it will prove distinct. It is considerably larger and broader than *E. ambiguus*, and the coloration though variable in both appears never to quite agree: the feet are not black in *E. arduus*, and the thorax is not red with a large black patch on the middle, but is either nearly red or nearly black.

It is apparently smaller than the inadequately known *E. antennatus*, and is less depressed, and has the thorax less straight-sided, and the sides less convergent in front.

HAB. Oahu (Perkins).

(23) *Eopenthes antennatus*, sp. nov.

Fusco-niger, elytrorum basi vage rufescente, antennis pedibusque fusco-rufis; thorace elongato, antrorsum angustato, dense fortiter punctato. Long. 10—10½ mm.

Var. Thorace parcius punctato, elytris concoloribus.

Distinguished from *E. konae* by the larger development of the antennae of the male, and by the thorax being regularly narrowed to the front. The antennae are 5 mm. long, their joints are broader and more serrate than they are in *E. konae*. Six specimens. There is a great deal of discrepancy in these individuals, so that if they are all one species it must be a very variable one.

HAB. Oahu, VIII. 1900 (Perkins).

(24) *Eopenthes oahuensis*, sp. nov.

Niger, nitidus, parce subtiliter pubescens, elytris summa basi flavescente, pedibus testaceis, antennis testaceis vel fusco-testaceis basi testacea; prothorace parce punctato. Long. 7—7½ mm.

Narrow, with the hind angles of the thorax but little divergent. Though rather similar to some of the varieties of *E. konae* there is no doubt of its distinctness. Four specimens.

HAB. Oahu (Perkins).

(25) *Eopenthes varians*, sp. nov.

Colore varians; saepe nigerrimus, parce minus subtiliter fusco-pubescens; prothorace fortiter punctato, elytris profunde striatis, apicibus haud spinosis. Long. 6¼—8½ mm.

Var. *a*. Elytris dimidio basali pallido.
,, *b*. Niger, pedibus flavis.
,, *c*. Elytris dimidio basali pallido, pedibus flavis.

The great variability in colour of this species is accompanied by a considerable sexual difference in size and form, but the species cannot be confounded with any other found on Molokai. Fifty specimens.

HAB. Molokai. Mountains, 12. VII. 1893; 4000 ft. 12. VIII. 1893; 9. VI. 1893; 4000 ft. VI. 1896; Kalae mts. 7. VIII. 1893; Makakupaia, 26. XII. 1893; Kalawao, 8. VIII. 1893 (Perkins).

(26) *Eopenthes satelles* Blackburn.

Eopenthes satelles Blackburn, Tr. Dublin Soc. III. 1885, p. 155.

Niger, pallido-pubescens, elytris pedibusque infuscato-testaceis; prothorace fortiter punctato, nitido, elytris profunde striatis. Long. 7—7½ mm.

This species has a coarsely but not densely punctured thorax, on which the rough, pallid, pubescence stands out very conspicuously; the hind angles of the thorax are usually rufescent. The species appears to be very closely allied to *E. ambiguus* structurally, and the tarsi are almost the same in the two, but *E. satelles* has the apical part of the elytra less attenuate, and the apices very indistinctly spinose. The colour varies somewhat, and the female appears to be usually rather larger than the male, and has less elongate legs and tarsi, which too are usually paler in colour, being yellow, more or less slightly infuscate. Seventeen specimens.

HAB. Lanai. Halepaakai, VII. 1896; Lanaihale, VII. 1894 and VII. 1896; mts. Koele, 3000 ft. VII. 1894 (Perkins); Koele (Blackburn).

(27) *Eopenthes tinctus*, sp. nov.

♂. Nigro-rufus, elytrorum basi rufescente; prothorace minus crebre sat fortiter punctato; elytris profunde striatis, apicibus spinosis. Long. 8, lat. 2 mm.

We have only one specimen of this species, and it is in bad preservation, all the pubescence being rubbed off. It appears to be nearest to *E. ambiguus*, but it has the antennae comparatively shorter and broader, and the tarsi rather broader and thicker There is considerable difference in the colour, but this is of little importance; the colour in both is obscure red with the elytra testaceous, and all the parts more or less infused

with black; this dark infusion is greater in *E. tinctus*, so that the thorax above is black with reddish angles. On the under surface, either the black or the red colour predominates on several parts, but this is no doubt variable. From *E. muticus*, which it superficially somewhat resembles, it is distinguished by the strong denticulation of the prosternal process. It is smaller and more slender than *E. konae* and *E. cognatus*.

HAB. Hawaii, Olaa, XI. 1896 (Perkins).

(28) *Eopenthes ambiguus* Blackburn.

Eopenthes ambiguus Blackburn, Tr. Dublin Soc. III. 1885, p. 155.

Angustus, sordide testaceus, prothorace disco late nigricante, crebre sat fortiter punctato: elytris sat profunde striatis, plus minusve infuscatis. Long. 7—8 mm.

The small series of examples—14 in number—before me indicate a variable insect, with elongate antennae in the male, and slender feet without dilated joints; the thorax is subparallel at the sides, the hind angles being comparatively little turned outwards.

HAB. Oahu (Perkins); Palolo valley, 2000 ft. (Blackburn).

(29) *Eopenthes muticus*, sp. nov.

♂. Angustus, haud convexus, nigricans, elytris testaceis, circa scutellum, sutura apiceque nigricantibus, antennarum basi pedibusque sordide testaceis. Long. $7\frac{1}{2}$, lat. $1\frac{3}{4}$ mm.

Plate XIII. fig. 6.

An obscurely, or indefinitely coloured insect, of slender form, with elongate antennae and legs, distinguished from its allies by these characters, and by the fact that the prosternal process is more than usually abruptly bent upwards behind the coxae, and has no tubercle on it (Plate XIII. fig. 9). The angles of the thorax are strongly divergent, the punctuation rather coarse. The elytra are rather deeply striate; at the tips they are slightly sinuate, and though not really denticulate, end in a very acute angle. There does not appear to be any dilatation of the tarsal joints, the fourth joint is slender and elongate. The eight specimens before me are all males.

HAB. Kauai, high plateau, VIII. 1896; 4000 ft. VII. 1896 (Perkins).

(30) *Eopenthes debilis* Sharp.

E. debilis Sharp, Tr. Dublin Soc. III. 1885, p. 154.

Mr Perkins has met with only one individual of this species. It may be readily distinguished from all the varieties of *E. ambiguus*, by the tarsal structure: the small fourth joint of the hind tarsus in *E. debilis* is a striking and distinctive character. The length is 7 mm.

HAB. Oahu (Perkins); Waianae mountains, 2500 ft. (Blackburn).

(31) *Eopenthes parvulus*, sp. nov.

Rufulus, capite nigro; elytris pallidis, subtiliter striatis, striis ad apicem perparum impressis; tarsis articulis bene dilatatis, articulo quarto minuto. Long. 6 mm.

This is one of the smallest *Eopenthes*. We have only 6 specimens; they are all females, and are distinguished from *E. debilis* by the rather smaller size, and the more delicate striation of the elytra. The distinctness of the species requires confirmation by comparison of larger series of the two forms.

HAB. Oahu. N.W. Koolau range, VII. 1901 and VIII. 1901 (Perkins).

(32) *Eopenthes marginatus*, sp. nov.

♂ Niger, elytris pallidis, nigro-marginatis, antennis pedibusque fusco-testaceis; prothorace crebrius fortiter punctato, elytris striatis, striis apicem versus obsoletis. Long. 5½ mm.

This is the smallest of the *Eopenthes*. We have only one specimen; it is a male, and comes very near *E. parvulus*, though extremely different in colour. Our specimens of *E. parvulus* are all females, and *E. marginatus* therefore is at present a doubtful species. It may prove to be a variety of the male of *E. parvulus*. The elytra are very pallid with the suture and the extreme tips black, and the black colour extends forwards along the extreme outer margin; the extreme base of the elytra is also black. The interstices of the elytra are very narrow, and the apices are very attenuate.

HAB. Oahu. N.W. Koolau range, VII. 1901 (Perkins).

(33) *Eopenthes tarsalis*, sp. nov.

♀ Niger, pedibus flavis, elytro singulo plaga magna pallida, antennis fusco-flavis. Long. 8½, lat. 2 mm.

This species is very readily recognisable by the remarkably definite coloration and the fact that the dilatation of the tarsi here reaches its maximum. We have only one female. The form is rather elongate and parallel; the thorax is rather closely and coarsely punctured. The elytra have a black triangle at the base, the apical portion is broadly black, and the suture and side-margins narrowly black. Underneath the colour is intensely black: the legs are yellow. The dilatation of the tarsi is as well marked in the hind as it is in the front pair.

HAB. Kauai, Lihue, 3000 ft. VII. 1896 (Perkins).

ITODACNUS Sharp.

Itodacnus Sharp, Tr. Dublin Soc. III. 1885, p. 156.

(1) *Itodacnus coruscus*, Karsch.

Corymbites coruscus Karsch, Berlin. ent. Zeitschr. XXV. p. 5, Pl. I. fig. 6.

We have not received any *Itodacnus* from the island of Maui, and I am not able to say whether Karsch's *coruscus* is distinct from *gracilis* or not.

HAB. Maui (Olinda, Dr Finsch).

(2) *Itodacnus major*, sp. nov.

Fusco-rufus, prothoracis marginibus, antennis pedibusque testaceis; elytris elongatis profunde striatis. Long. ♂ 15 mm.; ♀ 16½—17 mm.

Allied to *I. gracilis*, but larger and of different proportions, the elytra being longer in comparison with the thorax. There is very considerable difference in the sexes, the male being smaller and much more slender than the female. In the male the length of the thorax from front margin to hind angle is nearly 3½ mm., that of the elytra 11 mm.; in the female the thoracic length is 4½ mm., the elytral length 12 mm. The antenna of the male is fully 8 mm., that of the female fully 7 mm. These measurements are quite sufficient to distinguish the species. Five specimens.

HAB. Kauai. 4000 ft. VII. 1896; high plateau, VIII. 1896 (Perkins).

(3) *Itodacnus gracilis* Sharp.

Itodacnus gracilis Sharp, Tr. Dublin Soc. III. 1885, p. 156, Pl. IV. fig. 18.

We have a large series of this species. The female is a good deal larger than the male, so that there is considerable difference in size between the smallest male and the largest female; the respective dimensions being 11½ and 16 mm. The male antennae attain a length of 7½ mm. and those of the female 6¼ mm. In the male the length of the thorax from front margin to hind angle is 4½ mm., that of the elytra scarcely 9½. The length of the thorax in the female is 5 mm., and that of the elytra about 10½.

Though the species is found on two distant islands, there is but little variation. Many of the specimens from Hawaii are somewhat darker in colour than those from Oahu. We have received about 120 examples of *I. gracilis*, about 30 of them being from Oahu.

HAB. Oahu, Hawaii.—Oahu: Honolulu (Blackburn, Perkins); 2000 ft. IX. 1896; N.W. Koolau range, V. 1901 and VII. 1901.—Hawaii: Olaa, on several occasions; above Hilo, VIII. 1896 and II. 1897 (Perkins).

(4) *Itodacnus kauaiensis*, sp. nov.

♀ Niger, prothoracis margine posteriore, antennis pedibusque testaceis, elytris rufo-brunneis. Long. 11½—12 mm.

This is very similar to *I. gracilis*, but is of less elongate form, and is distinguished by some small structural characters; the thorax being shorter than in *I. gracilis*, and the prosternal process more abruptly bent behind the coxae. A second character is found in the lamina of the hind coxa, the outer of the two projections therefrom being much less than it is in *I. gracilis*. The sculpture of the two species is very similar. The length of the prothorax is only 3 or 3¼ mm., that of the elytra 8 mm. Three specimens.

HAB. Kauai: Lihue, 3000 ft. VII. 1896; 4000 ft. VII. 1896; Halemanu, 4000 ft. V. 1895 (Perkins).

(5) *Itodacnus blackburnianus*, sp. nov.

Nigricans, antennis pedibusque testaceis, prothoracis margine summo elytrisque rufescentibus; thorace antrorsum minus angustato, subtiliter punctato; lamina coxarum posteriorium angulo externo perparum prominente, rotundato. Long. 8—10 mm.

Considerably smaller than *I. gracilis*, or *I. kauaiensis*, and with the thorax less narrowed in front, and rather more finely punctured; readily distinguished from them by the very slight prominence of the angle of the coxal lamina, which in fact has almost ceased to exist.

We have only two males and five females of this species.

HAB. Hawaii: Kilauea, 4000 ft. VIII. 1894, VIII. 1895, and VIII. 1896; Mauna Loa, 4000 ft. 12. VIII. 1892 (Perkins).

(6) *Itodacnus sordidus*, sp. nov.

Fusco-testaceus, prothoracis margine posteriore, antennis pedibusque testaceis, elytris rufo-brunneis; lamina coxarum posteriorium, angulo externo perparum prominente. Long. 8½—9½ mm.

This species comes very close to *I. blackburnianus*, but it has the thorax still more abbreviate, it being only 2 or 2¼ mm. long. It is also a flatter and less convex insect and is, I have no doubt, distinct. We have only one male and two females of the species. The male has the antennae much longer than the female, they being 5 mm. long; in the female only 3¾ mm. The darker patch on the thorax appears to be formed by the union of two longitudinal marks, and leaves the margins paler in an indefinite manner.

HAB. Kauai: mts. Waimea, 3000 ft. IV. 1894 and 4000 ft. VII. 1896 (Perkins).

(7) *Itodacnus chloroticus*, sp. nov.

Angustus, stramineo-testaceus, haud nitidus, prothorace subtiliter punctato. Long. 6½—8 mm.

Distinguished from all the other species by its extremely pallid colour and the reduced sculpture and pubescence. We have only three examples, two of which are females, while the third specimen, the smallest of the three, is, I believe, a male.

The thorax is remarkably straight at the sides, being very little rounded and narrowed in front; its hind angles are very fine and sharp; its surface has a peculiar silky dulness, on which the fine punctuation shows but little. The elytra are rather deeply striate, and the punctuation on the interstices is rather fine. The pubescence is everywhere very minute and inconspicuous.

Hab. Oahu (Perkins and Koebele); N.W. Koolau range, vii. 1901 (Perkins).

(8) *Itodacnus collaris*, sp. nov.

Angustus, haud depressus, prothorace subtiliter punctato, elongato, lateribus subparallelis; elytris profunde striatis. Long. 9 mm.

We have only two specimens of this species, which are very discrepant in colour, so that I have not alluded to this in the diagnosis; one is entirely rufescent, with pallid antennae and legs, and the other has the head and the greater part of the thorax and under surface blackish. Both are males, and the colour of the paler specimen is probably due to immaturity.

Although resembling pretty closely *I. blackburnianus*, *I. collaris* is quite distinct, as it has the angle of the inner lamina of the hind coxa much more prominent: the legs of *I. collaris* are also considerably stouter. In this character and in general appearance it makes some approach to the genus *Dacnitus*.

Hab. Molokai, June, 1896 (Perkins).

Dacnitus, gen. nov.

Corpus breve, pedibus majusculis. Metasternum abbreviatum. Coxae posteriores lamina externa fere nulla, lamina interna angusta, excisione trochanterali fere nulla.

This may be briefly described as an *Itodacnus*, with cursorial legs. The short hind-body and the abbreviated metasternum make it probable that when more material is found for study the insect will prove to be a flightless form.

Although in some of the species of *Itodacnus* the inner lamina of the hind coxa, as well as the outer one, is considerably reduced, yet these are not intermediates in this respect between *Itodacnus* and *Dacnitus*. For in this genus the lobe though reduced in width, is increased in length.

(1) *Dacnitus currax*, sp. nov.

Fusco-niger, haud nitidus, antennis pedibusque fusco-testaceis; parcius pubescens; prothorace suboblongo, parce punctato; elytris convexiusculis, profunde striatis. Long. 6½ mm.

Plate XIII. fig. 8.

We have only two specimens of this curious little Elater. I do not know their sex, but suspect them to be males, and that the female may be a larger insect, perhaps considerably different in form.

The antennae are very long, not serrate. The head is coarsely and very densely punctured; in strong opposition to the thorax, which has but little punctuation. The sides of the thorax are slightly bisinuate; and there is no raised line on the inner margin of the hind thoracic angles. The scutellum is quite distinct but not so elongate and pointed at the tip as is usual. The elytral striae are deep and there is very little sculpture on the interstices; these show some irregularities, different in the two individuals. The legs are both long and stout, the femora projecting much beyond the sides of the bodies.

HAB. Kauai, 13. IV. 1895. On the high plateau, under a log or stone on damp mud (Perkins).

Subfam. *EUCNEMINI*.

The subfamily Eucnemini includes at present about 600 species, and is found in all parts of the world except the cold regions. It is apparently entirely xylophagous, all the species living in the wood of trees. It is most difficult to deal with, as the species are extremely rare in collections, and most of them have been founded on unique specimens. Hence the classification of the group is in a very rudimentary state. It was monographed by Bonvouloir in 1870 (Ann. Soc. ent. France, ser. 4, Vol. X. suppl.) and his classification was little more than a tabulation of the genera intended to facilitate the determination of the species. The genera *Dromaeolus* and *Fornax* were recognised by him as two of the most extensive, and were diagnosed by the relation of the eye to the groove for the antennae. Our species with one exception all belong to these two genera, and it would be impossible in the case of some of them to say whether they should be placed in *Dromaeolus* or *Fornax*.

Recently (Ann. Soc. ent. France, LXX. 1901, pp. 636—664), the genera have been treated by M. Fleutiaux in a new table in which Bonvouloir's character has been entirely abandoned, and *Fornax* and *Dromaeolus* are distinguished by the former possessing dentate, the latter simple claws. According to this all our species (with the one exception noticed) come under *Dromaeolus*, and I have here adopted that view.

D. perkinsi and its near ally *D. germanus* have no connection with the other *Dromaeolus* found in the Hawaiian Islands, but I do not separate them as a distinct genus because of the unsatisfactory condition of the taxonomy of the subfamily.

I have recognised 33 species of *Dromaeolus* in the Hawaiian Islands. It is probable that all are precinctive. The material before me for dealing with this division is very inadequate. Leaving out of the question the two isolated species mentioned above we have less than 100 specimens, an average of about three to a species. As some of the species of Eucnemini are known to be variable, this material is clearly inadequate to enable me to decide on the specific limits with any certainty, and my attempt to define the species must be considered as merely tentative.

I find that the phenomenon of flightlessness exists, as some of our most peculiar species have nothing but mere rudiments to represent the wings. Others have the organs of flight fully developed. Owing to the scanty material before me I am unable to deal with this question satisfactorily, and in many cases I am only able to guess as to whether the insect has wings or not. I am not aware that any flightless Eucneminae have been detected elsewhere.

The following key is therefore merely a temporary device and is perhaps not even accurate.

Group 1. Large insects, elongate and narrow, fully winged, with short coxal laminae (all the other forms have longer coxal laminae). Species 1 and 2.

Group 2. Winged forms, slender in build and elongate in form; usually of small size. Species 3—16.

Group 3. Clumsily built forms of large or moderate size, most of which I believe to be winged forms. But this is in several cases a mere guess. Species 17—27.

Group 4. Small forms with thorax large in proportion to the after body, which is always reduced in length. Most, if not all, of the species are pretty certainly wingless. This is however specially doubtful in the case of nos. 28 and 30, *D. cephalotes* and *D. hawaiiensis*. Species 28—33.

DROMAEOLUS Kiesenwetter.

Dromaeolus Kiesenwetter, Nat. Ins. IV. 2, 1858, p. 197.

Group 1.

(1) *Dromaeolus perkinsi*, sp. nov.

Elongatus, angustus, nigerrimus, nitidus, pube albidescente sparsim vestitus, prothorace canalicula brevi. Long. 10—15 mm., lat. 3—3¼ mm.

Plate XIII. fig. 11.

Entirely black, except that there is a white pubescence—scanty on the upper surface, more dense below—and that the tarsi are reddish towards their tips. The antennae are elongate, reaching, when in their grooves, quite as far back as the hind margins of the middle acetabula, the 4th joint is rather longer than broad, and the fifth still a little longer. Thorax rather closely and coarsely punctured, with a short channel on the middle behind. Elytra feebly striate, with the punctuation dense at the base, but scanty elsewhere, the suture raised and forming a minute spine at the tip. Under surface densely punctate, and with a rather abundant pallid setosity. Except in size the species varies but little.

D. perkinsi and its close ally *D. germanus* have no relation to any of the other Hawaiian *Dromaeoli*. The coxal laminae are much shorter, not reaching nearly so far back as the 1st ventral suture; the mesosternal cavity has broad margins; the clypeus is emarginate in front; the tarsi are stronger, with longer terminal joint and claws.

The two species are more similar to the Californian *D. basalis*, from which however they are abruptly distinguished by the deep, definite and elongate antennal grooves.

HAB. Hawaii, Maui.—Hawaii: Kilauea, August, 1895, 16 specimens (no. 574); Kona, 3500 ft. 28. VI. 1895, 2 specimens.—Maui: Haleakala, 4000 ft. 31. III. 1894 (Perkins).

On Maui fragments only, of two individuals however, were met with. I can find no important difference from the Hawaiian specimens.

(2) *Dromaeolus germanus*, sp. nov.

Elongatus, angustus, nigerrimus, nitidus, pube albidescente sparsim vestitus, prothorace canalicula mediana elongata. Long. 10 mm.

Very closely allied to *D. perkinsi*, but rather narrower with shorter antennae and tarsi, and the channel on the middle of the thorax longer. The eyes are rather smaller and do not infringe on the line of the antennal groove, so that even in Bonvouloir's arrangement the species would come into *Dromaeolus*.

We have received only one example; unfortunately after being examined it met with an accident and is much damaged. It probably represents a really distinct species.

HAB. Kauai, 4000 ft. VII. 1896 (no. 640, Perkins).

Group 2.

(3) *Dromaeolus bonvouloiri* Sharp.

Fornax bonvouloiri Sharp, Tr. Dublin Soc. III. 1885, p. 151.

This little insect is distinguished by its uniform dull, infuscate red colour, with the pubescence rather paler, flavescent; the dense thoracic punctuation, and the narrow form much acuminate behind. The antennae are moderately long and reach back quite as far as the hind margin of the middle acetabula; the third joint is rather short, the fourth small, about as long as broad, and half as long as the third, the fifth is distinctly larger, slightly longer than broad, the sixth to tenth differ but little from one another, each is much longer than broad, though hardly twice as long as broad, the terminal joint is elongate, three times as long as broad; the tarsi are rather long and moderately stout; on the hind legs the basal joint is about as long as the following four together, the fifth joint is of moderate size, the claws are rather small; the lamina of the hind coxa extends quite as far back as the first ventral suture: the eyes scarcely impinge on the antennal groove, which extends as far back as the base of the thorax independent of the hind angles; the outline of the thorax is very regular, there being not the least sinuation of the sides near the hind angles. The sides of the mesothoracic cavity are slender, and are obtuse in front, not in the least tuberculate. Length 4—5½ mm. Breadth less than 2 mm.

HAB. Oahu (Blackburn); Honolulu mountains; N.W. and S.E. Koolau range (Perkins).

I have assigned to the species, with doubt, two specimens, which are rather larger and darker in colour, and have the fourth joint of the antenna slightly longer. They approximate to *D. arduus* (Hawaii).

(4) *Dromaeolus agriotoides*, sp. nov.

Nigrofuscus, elongatus, angustus, postice acuminatus, flavo-pubescens, sat nitidus, antennis pedibusque rufis, antennis elongatis. Long. 7½—8½ mm.

Allied to *D. bonvouloiri*, though much larger and darker in colour, and with the upper surface more shining. The elongate antennae extend back almost to the hind margin of the metasternum; when placed in their grooves three joints extend beyond the extremity of the thoracic angles; the fourth joint is a little longer than broad, the fifth is considerably longer, and the terminal joint is very long, slightly over ½ mm. The punctuation of the upper surface is rather scanty and fine, but quite definite, and the striation of the elytra is rather more distinct than usual. The borders of the mesosternal cavity are slender, and the punctuation of the under surface fine.

HAB. Hawaii. Two specimens; Olaa, June, 1895, and Kilauea, July, 1895 (Perkins). Mr Koebele has also found a specimen.

(5) *Dromaeolus arduus*, sp. nov.

Nigrofuscus, elongatus, angustus, postice acuminatus, flavo-pubescens, haud nitidus, antennis pedibusque rufis, illis sat elongatis. Long. 6¾—9 mm., lat. 2⅛—3 mm.

Closely allied to both *D. bonvouloiri* and *agriotoides*. Darker in colour than the former, with a rather long fourth joint and a shorter terminal joint to the antennae. More densely punctate and less shining than *D. agriotoides*, and with shorter antennae.

The feet are formed very much like those of *D. bonvouloiri*, the terminal joint being shorter than in *D. agriotoides*.

The two specimens found in Hawaii are discordant in size; it is possible that the form may prove to be not sufficiently distinct from *D. bonvouloiri*. Until more specimens of these difficult forms can be examined it is not possible to speak with any confidence.

The three specimens from Honolulu agree neither with this species nor with *D. bonvouloiri*, but apparently are nearest to *D. arduus*, of which I have labelled them as varieties. The thorax is shorter, more strongly punctured and less narrowed in front.

HAB. Hawaii: Kona, 3000 ft. VIII. 1894; Olaa, IX. 1896 (Perkins).—The variety from Oahu was found on the mountains near Honolulu in August, 1900 (no. 785, Perkins).

(6) *Dromaeolus cuneus*, sp. nov.

Elongatus, angustus, postice acuminatus, thorace elytris paulo latiore, fusconiger, dense subtiliter punctatus, pubescentia pallida; antennis pedibusque flavis, illis elongatis. Long. $5\frac{1}{4}$ mm., lat. vix $1\frac{3}{4}$ mm.

Closely allied to *D. bonvouloiri*; of all the species the narrowest and most wedge-shaped, the thorax being perceptibly broader than the elytra. The antennae are rather slender, and the terminal two and a half joints extend beyond the angles of the thorax. The punctuation of the thorax is less dense and coarse than it is in *D. bonvouloiri*. The fourth joint of the antennae is a little longer than broad, the terminal joint elongate. Only one specimen was found, and as I cannot place it at present with either of the other species I treat it as distinct, though it is far from improbable that it may prove to be connected with either *D. agriotoides* or *D. bonvouloiri*.

HAB. Hawaii: Kona, 3000 ft. August, 1894 (no. 142, Perkins).

(7) *Dromaeolus sordidus*, sp. nov.

Fusco-ferrugineus, dense subtiliter punctatus et pubescens, antennis elongatis. Long. $5\frac{1}{2}$—6 mm.

This is broader than *D. bonvouloiri* and less acuminate behind, darker in colour, much more finely punctate, with longer antennae, the setae and pubescence of which are more distinct. The antennae extend back as far as the hind margin of the metasternum, their third joint is elongate, not greatly shorter than the basal one, fourth much longer than broad. The legs are red, more or less infuscate; the front tibiae broad, and the second and third joints of the front feet are much smaller than the fourth. The antennal grooves are rather broader and less sharp and definite than they are in *D. bonvouloiri*. Two specimens.

HAB. Oahu, Kaala mts. 2000 ft. January, 1893 (no. 34, Perkins).

(8) *Dromaeolus obscurus*, sp. nov.

Fusco-ferrugineus, dense subtiliter punctatus et pubescens ; antennis sat elongatis. Long. 4—4¼ mm.

This may possibly not be distinct from *D. sordidus*, the difference in the antennae being perhaps sexual, and the other distinctions merely due to variation. The antennae are slightly longer than in *D. bonvouloiri* and the fourth joint evidently longer than broad. The front tibiae of one of the two individuals are dilated, but in the other they are not, and this renders it probable that the specimens are of two sexes. If therefore the examples are not distinct from *D. sordidus*, that species will prove to be a very variable one. Mr Perkins remembers the capture of these insects and thinks the four specimens are probably of one species as he found them in the same log.

Hab. Oahu : Kaala mts. 2000 ft. January, 1893 (no. 34, Perkins).

(9) *Dromaeolus compressus*, sp. nov.

Angustus, antice et postice angustatus, haud depressus, nigricans, antennarum basi pedibusque rufis, vel nigricantibus ; flavo-pubescens, subtiliter punctatus, parum nitidus. Long. 3¾ mm.

Smaller than *D. obscurus*, less depressed, and with the thorax more narrowed in front, and the elytra more slender at the tip. The thorax is narrowed to the front almost in a straight line, without any curve, and the hind tibiae and tarsi are very slender, with short terminal joint. It is not likely to be confounded with any species except *D. obscurus* ; *D. pachyderes*, and the other small species allied to it, have a differently shaped thorax.

We have only two specimens. The type from Maui is paler than the Hawaiian individual ; but I cannot separate the two on such small evidence. Both have the fourth joint of the antennae more elongate than in most of the allies : this is also the case with *D. sordidus*, with which *D. compressus* is not likely to be confounded on account of the differences in size and form.

Hab. Maui, Hawaii.—Maui, Jao valley, September, 1901 (no. 775).—Hawaii, Kona, 3000 ft. August, 1894 (no. 142, Perkins).

(10) *Dromaeolus konensis*, sp. nov.

Fusco-ferrugineus, subtiliter minus dense punctatus, sat nitidus, flavo-pubescens, antennis minus elongatis, cumque pedibus pallide rufis. Long. 4½ mm.

Closely allied to *D. bonvouloiri*, of less elongate form and less attenuate behind, darker in colour, and with finer punctuation. The antennae are shorter than those of *D. bonvouloiri*, and have a shorter fifth and terminal joints. Fourth and fifth joints rather slender, each rather longer than broad, the fifth slightly the larger, sixth—tenth very distinctly longer, subequal but each slightly longer than its predecessor. Thorax with a slight depression causing the hind angles to appear to be slightly flattened, its punctuation very fine. Elytra distinctly striate, but with only very indistinct punctuation. Under surface very slightly punctuate. Legs and antennae clear yellow-red. This is almost as near to *D. puncticollis* and *D. solitarius* as it is to *bonvouloiri*. The type specimen is nearer to *bonvouloiri*, but a second example (which I have treated as a variety) is more like *D. puncticollis*.

HAB. Hawaii: Kona, 4000 ft. in 1897 (Perkins). The variety is from Kilauea, August, 1896 (no. 656, Perkins).

(11) *Dromaeolus puncticollis*, sp. nov.

Angustus, nigricans, antennis pedibusque rufis, flavo-pubescens, haud nitidus; thorace dense fortiter punctato, elytris striatis; antennis sat elongatis. Long. 5½—6 mm.

This species has a coarser and closer punctuation on the thorax than any of the others; though of narrow form it is not acuminate behind like *D. bonvouloiri*. The antennae have about one joint extending beyond the hind angle of the prothorax: the striation of the elytra is a little more distinct than usual. The fourth joint of the antenna is only slightly longer than broad, and the terminal joint is moderately long. The species has a sordid appearance, and the colour is indefinite, both legs and antennae being more or less infuscate. The sides of the mesosternal cavity are narrow, and the tarsi are rather slender.

We have received nine specimens of this species, and they agree sufficiently in their characters to make me think the species is undoubtedly distinct from any other.

HAB. Hawaii. Kilauea, August, 1896 (6 specimens, no. 656); August, 1895 (3 specimens, nos. 532, 686, Perkins).

(12) *Dromaeolus mixtus*, sp. nov.

Angustus, rufus, antennis plus minusve nigricantibus, flavo-pubescens, haud nitidus, thorace dense fortiter punctato, elytris striatis; antennis sat elongatis. Long. 4—5 mm.

The coarse extremely dense sculpture of the thorax allies this species to *D. puncticollis*. But I do not think the two forms will be found to be connected. Besides the differences in size and colour (which are perhaps of little importance), there is a difference in form; *D. mixtus* is more convex and shorter.

There are only three specimens of this species; two, very much alike, have the antennae in larger part black; the third specimen is smaller, immature and much injured; it has the antennae entirely yellow, possibly owing to its immaturity.

HAB. Molokai: mountains, 4000 ft. May 17th, 1893 (no. 184, Perkins).

(13) *Dromaeolus parallelus*, Blackburn.

Fornax parallelus Blackburn, Tr. Dublin Soc. III. 1885, p. 152.

This is a remarkably elongate and narrow form, of an uniform reddish colour, with deeply striate elytra. It has not been met with by Mr Perkins.

Hab. Oahu. In moss near the summit of Konahuanui (Blackburn, 1 specimen).

(14) *Dromaeolus solitarius*, sp. nov.

Angustus, parum convexus, postice sat angustatus, niger, nitidus, flavo-pubescens, antennis pedibusque rufis, illis elongatis; tarsis angustis; thorace minus dense punctato. Long. 5 mm.

Nearest to *D. puncticollis*, though very different in appearance on account of the shining surface and much diminished thoracic punctuation. On the anterior part the punctuation is moderately coarse and close, but becomes diminished behind. The elytra are very distinctly striate, shining; the punctures on the interstices, and the pubescence, scanty. Nearly two joints of the length of the antennae extend beyond the tip of the thorax. The antennae and feet are formed much as in *D. puncticollis*. One specimen, beaten from dead Acacia; an extremely quick runner.

Hab. Hawaii: Kona, 3000 ft. September, 1892 (no. 210, Perkins).

(15) *Dromaeolus sculpturatus*, Blackburn.

Fornax sculpturatus Blackburn, Tr. Dublin Soc. III. 1885, p. 151.

Apparently most nearly allied to *D. solitarius*, but much more elongate. The following is Mr Blackburn's diagnosis, "Haud latus; postice angustatus; niger, antennis pedibusque rufopiceis; capite crebrius nec fortiter punctato; prothorace transverso, antice parum angustato, confuse nec crebre punctato; elytris fortiter striatis, interstitiis convexis, confuse nec distincte punctatis. Long. 7½ mm."

Hab. Oahu. Waianae mountains (1 specimen, Blackburn).

(16) *Dromaeolus mauiensis*, sp. nov.

Fusco-niger, antennis pedibusque rufis, dense subtiliter punctatus et flavo-pubescens, haud nitidus, antennis elongatis crassiusculis. Long. 7½ mm., lat. 2½ mm.

Closely allied to *D. bonvouloiri*, though looking very different on account of its larger size, and broader and more clumsy form, and darker colour. The only structural difference I see between the two is that in *D. mauiensis* the sides of the mesosternal cavity are considerably broader.

The antennae are clear, pale red. They are formed much as in *D. bonvouloiri* but are broader; the fourth joint is slightly longer proportionally to its width, and the fifth is much longer than the fourth. The legs are red, stout.

This species in appearance connects the *D. bonvouloiri* group with the *D. obtusus* group. The shortest of the five individuals a good deal resembles small *D. elateroides*, but I think the two are distinct.

Hab. Maui. Haleakala, 5000 ft. May, 1896 (nos. 605, 610, Perkins).

Group 3.

(17) *Dromaeolus collaris*, sp. nov.

Brevis, robustus, nigricans, thorace pedibusque nigricantibus, rufo plus minusve dilutis, thorace fortiter punctato; elytris profunde striatis, interstitiis subtilissime punctatis et pubescentibus. Long. 7 mm.

In appearance most like *D. molokaiensis*, but apparently not closely allied to it or to any other species; we have however only one specimen, and I am unable to make repeated examinations of its minute structural characters, as it is in rather bad preservation. The antennae are elongate, rather slender, blackish, fourth and fifth joints subequal, each longer than broad. Terminal joint elongate, tarsi slender. Elytra deeply striate, with very little punctuation or pubescence on the slightly convex interstices; hence the pubescence is divided into separate stripes in a more remarkable manner than in any other species.

Hab. Maui. Haleakala, 5000 ft. 1 April, 1894 (no. 354, Perkins).

(18) *Dromaeolus obtusus*, Blackburn.

Fornax obtusus Blackburn, Tr. Dublin Soc. III. 1885, p. 152.

The individuals of this species are the largest of this section of the genus, and remarkable on account of their broad, robust form. The thorax is not gradually narrowed from the base to the front, the marked convergence only occurring from the middle. The punctuation is coarse; the pubescence short and inconspicuous; the length varies from 8—10½ mm. or perhaps a little more.

Mr Perkins has met with seven specimens, but most of them were found dead and are in very bad preservation. Mr Blackburn found two specimens, one of them being also very mutilated. His description leads one, I think, to anticipate a finer punctuation than really exists.

Hab. Maui. Haleakala, 5000 ft. (Blackburn and Perkins). Perkins' specimens are dated 31 March, 1894, and May, 1896.

(19) *Dromaeolus elateroides*, sp. nov.

Robustus, sat latus, anterius satis, posterius magis acuminatus, nigricans, elytris postice rufescentibus, parum nitidus, crebre punctatus et flavo-pubescens, antennis pedibusque piceis vel rufis. Long. $5\frac{3}{4}$—$7\frac{1}{2}$ mm.

Smaller than *D. obtusus*, more acuminate, with rather closer and finer punctuation and somewhat longer antennae.

Mr Perkins found six specimens that I assign to this species and portions of two others; they are most of them much mutilated, and as they exhibit a good deal of difference I am not sure that all are one species. Two or three of them have the antennae thicker than in any of the other Hawaiian species. As a similar difference occurs in the specimens which I have determined as *D. obtusus*, it is possible that this is a sexual character. They were found on various occasions, and therefore, on the other hand, they may not be all one species.

HAB. Maui. Haleakala, 3000—4000 ft. in April and May, 1894 and 1896 (Perkins).

(20) *Dromaeolus* sp.

Mr Perkins found thorax and head, without appendages, of a *Dromaeolus*, probably near *D. elateroides* and of about the size of that species, but with the thorax evenly and strongly narrowed from the hind angles to the front.

HAB. Hawaii. Olaa, Sept. 1896 (no. 688, Perkins).

(21) *Dromaeolus* sp.

Mr Perkins found portions of a specimen on Molokai that resembles an extremely small *D. elateroides* but has the wings reduced to mere rudiments. Although I am not sure that *D. elateroides* is a winged form yet I have little doubt of it, and I consider therefore that the Molokai fragment represents a distinct species.

HAB. Molokai: mountains, in June, 1896 (no. 593, Perkins).

(22) *Dromaeolus brachycerus*, sp. nov.

Nigro-fuscus, subparallelus, flavo-pubescens, haud nitidus, dense punctatus, antennis pedibusque rufis; antennis articulis quarto et quinto subaequalibus, singulo quadrato. Long. $7\frac{1}{2}$ mm.

We have only one example of this species, and it is mutilated, having been found dead (as is often the case with Eucnemidae), but it is so distinct that I venture to describe it.

The antennae are rather stout and short, the fourth joint not longer than broad, the fifth a little longer, the third about as long as these two and half the sixth together, terminal joint rather long, stout. Thorax strongly transverse, differing from the species grouped round *D. obtusus* by the less developed hind angles, rather closely and coarsely punctured, not shining. Elytra distinctly striate, the interstitial punctuation rather coarse. [Coxal laminae falling very distinctly short of the first ventral suture.] Tarsi slender, their last joint small. The character drawn from the hind coxae may possibly be due to the disarticulated condition of the specimen.

HAB. Oahu: mountains behind Honolulu, December, 1896 (Perkins).

(23) *Dromaeolus sputator*, sp. nov.

Robustus, sat latus, piceo-niger, vel piceo-rufus, crebre subtiliter punctatus, dense flavo-pubescens, subopacus; antennis, modice elongatis, pedibusque sordide testaceis, prothorace elongato et lato; tarsis angustis. Long. 8—8½ mm.

Much narrower than *D. obtusus*, and with the antennae different from those of *D. brachycerus*. They are rather slender, and about one joint extends beyond the thoracic angle; the fourth joint is rather longer than broad. The thorax is long, not much narrowed in front and distinctly broader than the elytra. The striation on the elytra moderately deep. The tarsi are more slender in this species and in *D. molokaiensis* than in any of the other large species. Two specimens, found in fallen decaying acacias.

HAB. Hawaii. Mauna Loa, 4000 ft. September, 1892 (Perkins).

(24) *Dromaeolus mololokaiensis*, sp. nov.

Convexus, crassus, haud elongatus, piceus, haud nitidus, flavo-pubescens, antennis pedibusque rufis, illis haud elongatis, parum crassis. Long. 7½ mm. lat. fere 3 mm.

Allied to *D. obtusus* and *elateroides*: of very convex form, and readily distinguished from the two species by its smaller antennae and more slender legs. The antennae are rather slender, and do not extend backwards quite so far as the thoracic angles, the third joint is rather slender, distinctly longer than broad, the following joints are rather more slender and less elongate than they are in the allied species, the terminal joint is moderately long, about twice as long as the fifth. The punctuation is moderately coarse and close; the thorax is but little narrowed in front. We have only one example.

HAB. Molokai: mountains, 4000—5000 ft. 24 August, 1893 (Perkins).

(25) *Dromaeolus subtilis*, sp. nov.

Robustus, elongatus, sat latus, postice acuminatus, parum nitidus, subtilissime pubescens, thorace elongato, anterius angustato, angulis posterioribus elongatis, dense subtiliter punctato; elytris evidenter striatis, interstitiis discrete punctatis: antennis elongatis. Long. 9½ mm.

Very close to *D. obtusus*, but narrower, acuminate behind, with a differently shaped and much more finely punctured thorax, and very delicate pubescence on the upper surface. The colour is very much that of *D. obtusus*, fuscous-black or piceous, with the elytra behind obscurely reddish. We have only one specimen, which in general structure seems extremely similar to *D. obtusus*, the legs and antennae being however a little more elongate; the terminal joint of the hind tarsus is longer than in any other species, and the last ventral plate is a good deal prolonged and a little bent at the apex in the middle so as to be somewhat gutter-like.

Hab. Oahu. Kaala mountains, 2000 ft. January, 1893 (no. 55, Perkins).

(26) *Dromaeolus concolor*, sp. nov.

Latiusculus, convexus, rufus, antennis pedibusque flavis, crebre subtiliter punctatus, subnitidus, subtiliter flavo-pubescens. Long. 5—5¼ mm., lat. 2 mm.

The antennae are rather long and stout, one joint extending beyond the tip of the thoracic angle, the fourth joint is small, scarcely so long as broad and a good deal shorter than the fifth, terminal joint elongate. Thorax large, with large hind angles, but no depression of the surface in front of them. Striation of elytra fine; the punctuation and pubescence on thorax and elytra are fine, but still render the surface moderately dull; the thorax is about 1¾ mm. long, the elytra about 3 mm. Fourth joint of the tarsi small, the terminal joint rather long. This is about the size of *D. bonvouloiri*, but is considerably broader, and has broader sides to the mesosternal cavity and a broader prosternal process, and a much shorter basal joint to the hind tarsus. It is more nearly allied to *D. obtusus*, but besides the great difference in size and colour, it is more finely punctate. Four specimens.

The specimens were reared from the larval state, and the colour may therefore be darker in fully mature examples. Some fragments found by Mr Perkins on Haleakala in March, 1894, apparently belong to this species, and seem to be of much the same coloration.

Hab. Maui. Haleakala, 5000 ft. May, 1896 (no. 617, Perkins).

(27) *Dromaeolus piger*, sp. nov.

Latiusculus, brevis, convexus, rufus, antennis pedibusque flavis, subtiliter flavo-pubescens, subnitidus, thorace anterius dense fortiterque punctato. Long. 4—4½ mm.

Very similar to *D. concolor* but smaller, more attenuate behind, and with a denser and coarser punctuation of the thorax, especially on the anterior part, and with a much shorter terminal joint to the tarsi. Two specimens.

This species seems really distinct. It has the hind angles of the thorax remarkably long and attenuate. In size it connects the *D. obtusus* forms with *D. pachyderes*.

Hab. Kauai: on the high plateau, August 1896 (no. 682, Perkins).

Group 4.

(28) *Dromaeolus cephalotes*, sp. nov.

Parum elongatus, convexus, piceo-niger, antennis pedibusque rufis, dense subtiliter punctatus, flavo-pubescens, parum nitidus ; capite fortiter profundeque punctato. Long. $5\frac{3}{4}$ mm.

In size and form this comes nearest to *D. concolor*, but differs from it and from all the other species, except *D. puncticeps*, by the punctuation of the head differing in a very remarkable manner from that of the rest of the body. From *D. puncticeps* it differs in not being shining, owing to its denser and finer punctuation and pubescence. The antennae are rather long, and bear a conspicuous setosity, the fourth joint is longer than broad, and as long as the fifth ; the terminal joint is longer than usual but not twice as long as the tenth. In the unique specimen it is peculiarly flattened or compressed. It is possible this insect may be the other sex of *D. puncticeps*, but I think this is highly improbable. In fact I shall not be surprised if *D. cephalotes* prove to be a winged, and *D. puncticeps* a wingless, form.

HAB. Kauai : high plateau, August, 1896 (no. 682, Perkins).

(29) *Dromaeolus puncticeps*, sp. nov.

Parum elongatus, anterius et posterius angustatus, piceus, nitidus, flavo-pubescens, antennis rufo-piceis, pedibus rufis ; thorace magno, anterius fortiter angustato ; capite fortiter punctato, nitido. Long. $4\frac{1}{2}$—5 mm., lat. $1\frac{3}{4}$ mm.

This insect has the thorax large in proportion to the elytra, and the hind angles large. The antennae are rather long and pilose, the space by which they are separated is less than usual. There is not much punctuation on the thorax, so that the deep coarse punctures on the head are strongly contrasted with the other sculpture.

Four specimens. I think the two sexes are among them, but am not at all sure. The species will I think prove to be apterous, its proportions being more like those of *D. pachyderes* than those of the forms I have assumed to be winged.

HAB. Kauai : on the high plateau, August, 1896 (no. 682, Perkins).

(30) *Dromaeolus hawaiiensis*, sp. nov.

Piceo-niger, subtiliter flavo-pubescens, nitidus, antennis piceis, pedibus fusco-testaceis ; thorace obsolete punctato. Long. $4\frac{3}{4}$ mm.

This is closely allied to *D. puncticeps*, but lacks the salient features of that species ; it is distinguishable from it by the less coarsely punctured upper surface, and by the thorax being less broad behind and less narrowed in front. The antennal cavities are not at all margined above. One specimen.

HAB. Hawaii : August, 1895 (no. 686, Perkins).

(31) *Dromaeolus pachyderes*, sp. nov.

Brevis, posterius angustatus, piceus, flavo-pubescens, antennis rufo-piceis, pedibus rufis ; prothorace subobsolete punctato. Long. $3\frac{1}{2}$—$4\frac{1}{4}$ mm.

This little insect is smaller than *D. puncticeps* or *D. hawaiiensis*, and has the thorax less narrowed in front than the first of these. The antennae are rather long, formed much as in *D. puncticeps*, but rather less long and stout, the fourth joint, as in that species, as long as the fifth : the elytra are finely striate, the sutural stria rather deep, and distinctly deeper at the apex, but not so as to give rise there to the appearance of foveation that exists in many of the species. The fourth and fifth joints of the tarsi are small, the fifth being much smaller than it is in *D. puncticeps*. The wings in this species are reduced to small functionless slips a little longer than the metathorax, remarkably narrow, without nervures.

Three examples of this species were bred by Mr Perkins in August, 1900, from *Pipturus* ; Tantalus (no. 785). I also assign to this species four individuals bred by Mr Perkins from Koa wood, in August, 1900 (no. 892). The locality though not stated is doubtless the mountains near Honolulu.

HAB. Oahu (Perkins, as above noted).

Dromacolus pachyderes, var. *kauaiensis*, var. nov.

Brevis, posterius angustatus, ferrugineus, flavo-pubescens, antennis extrorsum obscuris, basi dilutiore, pedibus flavis ; prothorace subtilius punctato. Long. 4 mm.

HAB. Kauai : mts. Waimea (nos. 267, 862, Perkins). The two specimens are so near to the specimens from Oahu that I do not venture to separate them on such slight evidence. There is however a little difference in the form of the angles of the thorax, which are straighter than in the Oahu examples, and not in the least incurved (no. 267).

A third specimen is considerably smaller, narrower, and less punctate. I have little doubt it is a different species, but the individual is too mutilated to treat as a type of a named species in so difficult a group.

(32) *Dromacolus grandicollis*, sp. nov.

Brevis, posterius acuminatus, thorace magno, ferrugineus vel fusco-ferrugineus, crebre subtiliter punctatus, flavo-pubescens ; elytris striatis. Long. $4\frac{1}{2}$—5 mm.

Very close to *D. pachyderes* ; slightly longer and narrower behind, with elytra a little more distinctly striate, the antennae a little thicker, and the terminal joint of the tarsi distinctly longer ; the fourth joint of the antenna is short, not longer than broad.

In addition to the three examples from Hawaii from which I describe this species, Mr Perkins found a single individual in each of three other islands ; they are so near to

D. grandicollis that I cannot distinguish them on such slender evidence: they are (1) a specimen found dead and completely abraded on Molokai, about 3000 ft. in May or June, 1893: (2) a specimen found on Haleakala, Maui, about 5000 ft. in May, 1895 (no. 610): (3) a specimen found on Kauai on the high plateau in August, 1896 (no. 682). I should suppose that the example from Maui may prove to be distinct, as it has a larger and broader thorax. The other two are superficially extremely near to the Hawaiian examples.

HAB. Hawaii: Kona, 2500 and 4000 ft. (Perkins).—Also Molokai?, Maui?, Kauai?, as above.

(33) *Dromaeolus pumilio*, sp. nov.

Brevis, convexus, rufus, antennis extrorsum obscurioribus, pedibus flavis; omnium parce obsoleteque punctatus et pubescens. Long. $2\frac{2}{3}$ mm.

Plate XIII. fig. 13.

This little insect appears to be very distinct; the thorax is scarcely at all narrowed in front, the antennal grooves are not definitely limited behind, the prosternal process is minute; the abdomen is very short, so that the coxal laminae are short and transverse, though they extend as far as the first ventral suture: the head is deeply retracted in the thorax, the anterior opening of the latter being large: the angles of the thorax are large, and very closely applied to the elytra, and there is a considerable depression of the surface in front of the angles. The antennae are moderately long and stout, with the fourth joint rather longer than broad. There is almost no punctuation and only a scanty pubescence on the thorax, so that it is unusually shining; the elytra are much narrowed behind, delicately striate, with but little punctuation. Legs moderately stout, terminal joint of tarsus with the claws moderate. Two specimens.

HAB. Oahu: Kawailoa gulch, April, 1893 (no. 415, Perkins).

CERATOTAXIA, gen. nov.

Antennae articulis 4—7 brevibus subaequalibus, articulis 8—11 elongatis subaequalibus.

Prothorax absque canaliculis.

Coxae posteriores, exterius brevissimae, interius abrupte sat dilatatae.

This genus can only be placed near to *Tharops*, from which it differs widely in the structure of the antennae, agreeing in this with *Dyscolotaxia* Horn. *Dyscolotaxia* is said however to be, except in respect of its antennae, a *Fornax*; and if that be correct, then *Ceratotaxia* can have no connection with it, owing to the absence of antennal grooves, and to the form of the coxal laminae. It appears therefore at present to be quite isolated from any known form.

(1) *Ceratotaxia tristis*, sp. nov.

Elongatus, angustatus, parum convexus, nigro-rufus vel niger, haud nitidus, dense sed subtiliter pubescens: pedibus testaceis. Long. 5½ mm.

Plate XIII. fig. 12.

Antennae rather stout, the elongate terminal four joints rather stouter than the others. Thorax short, a good deal narrowed in front, rather finely and closely punctured, not shining, hind angles not very large. Elytra elongate, a little narrowed behind, not at all acuminate, rather feebly striate. Legs slender, hind tarsi long and slender, with minute fourth joint and elongate terminal joint.

In general form this has a good deal of resemblance to *Dromaeolus puncticollis*. Only three specimens have been met with. Two of them agree fairly well: the third from a different locality (Kona) is darker in colour, and slightly smaller.

Hab. Hawaii: Kilauea, VII. 1895 (no. 576); Kona, 4000 ft. I. VII. 1892 (no. 338, Perkins).

Fam. BUPRESTIDAE.

Buprestis Linnaeus.

Buprestis Linnaeus, Syst. Nat. ed. 10, 1760, p. 408.

(1) *Buprestis adjecta* Leconte.

Buprestis adjecta Leconte, Proc. Ac. Phil. 1854, p. 17.

This N. American species was once found at large near Honolulu. Mr Perkins informs me that he believes there also has been a recent capture of this handsome beetle.

Hab. Oahu, Honolulu (Blackburn).

Agrilus Stephens.

Agrilus Stephens, Ill. Brit. III. 1830, p. 239.

(1) *Agrilus* sp.

A species of the genus *Agrilus* has been recently introduced into Oahu. It is one of the most obscure forms of this enormous genus, and I am not able to find a name for it.

Hab. Oahu, Honolulu (Perkins).

Fam. SCARABAEIDAE.

All of the few Hawaiian forms of this enormous family of beetles are introduced.

Trox Fabricius.

Trox Fabricius, Ent. Syst. I. 1792, p. 86.

(1) *Trox scaber* Linnaeus.

Trox scaber Linnaeus, Syst. Nat. I. 2, p. 573.
Recently introduced.

Hab. Hawaii, above Hilo (Perkins).

Aphodius Illiger.

Aphodius Illiger, Käf. Preuss. 1798, p. 15.

(1) *Aphodius lividus* Olivier.

Aphodius lividus Olivier, Ent. I. 3, p. 86, t. 26, f. 222.

Hab. All the islands (Blackburn, Perkins). Cosmopolitan.

Ataenius Harold.

Ataenius Harold, Col. Heft. II. 1867, p. 100.

(1) *Ataenius pacificus* Sharp.

Ataenius pacificus Sharp, Tr. ent. Soc. London, 1879, p. 90.

Hab. Oahu, near Honolulu (Blackburn).

(2) *Ataenius stercorator*, Fabricius.

Ataenius stercorator (Fabricius), Horn. Tr. Amer. ent. Soc. III. p. 286.

Hab. Oahu (Blackburn, Perkins).

(3) *Ataenius peregrinator* Harold.

Ataenius peregrinator Harold, Ann. Mus. Gen. x. p. 96.

Hab. Oahu, near Honolulu (Blackburn).

Saprosites Redtenbacher.

Saprosites Redtenbacher, Faun. Austr. 2 ed. 1858, p. 436.

(1) *Saprosites pygmaeus* Harold.

Saprosites pygmaeus Harold, Ann. Mus. Gen. x. p. 91.

HAB. All the islands (Blackburn, Perkins).

PSAMMODIUS (Gyll.) Serville.

Psammodius (Gyll.) Saint-Fargeau and Serville, Encycl. Méth. x. p. 359 (1825).

Psammobius Heer, Faun. Helv. I. (1841), p. 531.

Mr Perkins' collection contains two specimens of a *Psammodius*, one smaller and lighter coloured than the other. To what species they belong is not certain, but comparison with a number of species in the British Museum has shown them to be at any rate closely allied to a species found in Guatemala, *P. micros* Bates (Biologia Centrali-Americana, Coleoptera, II. 2, p. 103).

HAB. Oahu (Perkins).

ADORETUS Castelnau.

Adoretus Castelnau, Hist. Nat. II. 1840, p. 142.

(1) *Adoretus tenuimaculatus* Waterhouse.

Adoretus tenuimaculatus Waterhouse, Tr. ent. Soc. London, 1875, p. 112.

A. vitiensis Nonfried, Deutsche ent. Zeitschr. 1891, p. 268: Ohaus, Stettin. ent. Zeit. 1904, p. 255.

Nonfried gives only the Fiji islands as locality for this species, but Ohaus mentions its occurrence at Honolulu, where the species is now abundant though apparently only recently introduced. The species is evidently diffused by commercial operations. Ohaus was not acquainted with the fact of the species being the *tenuimaculatus* described long previously by Waterhouse from Japan. The form is perhaps not distinct from *A. compressus* Weber. Ohaus records also *A. vitiensis* from St Helena. The only *Adoretus* which I have seen from there is however *A. versutus* Wollaston, which is a very different species.

Whether the geographical statements summarised in the above lines be really correct is doubtful. Mr Perkins, who has now a considerable acquaintance with the entomology of the Fijian islands, informs me that he has never met with Fijian examples of *A. tenuimaculatus*. A species of *Adoretus* is very abundant there, but it is very different from *A. tenuimaculatus*.

HAB. All the islands: introduced about 1896 (Perkins). Also in a large number of other islands, as well as Ports and other localities, including St Helena, Hongkong, Ceylon.

Fam. LUCANIDAE.

Apterocyclus Waterhouse.

Apterocyclus Waterhouse, Tr. ent. Soc. London, 1871, p. 315.

This genus is not closely allied to any other. Mr Waterhouse alluded to its superficial resemblance to the Chilian genus *Sclerostomus*. *Apterocyclus* is however distinguished from *Sclerostomus* by the absence of a labrum and the nature of the mandibles, and it is really nearer to the widely distributed genus *Dorcus*. I have no doubt that the species are all wingless.

The species of this genus are all confined to the island of Kauai. Very few specimens are known of it, and it is most desirable that further information should be obtained and published. At present I am obliged to distinguish seven forms as species; but it is possible that some of them may be merely varieties, and that *A. feminalis* may be female of one of the other forms, all of which are known only in the male sex.

(1) *Apterocyclus waterhousei*, sp. nov.

♂ Brevis, latior, pedibus crassis, mandibula dente crassa, haud acuminata, sed fere oblique truncata; sutura elytrorum ad apicem angulatim prominula. Long. corp. sine mandib. 20 mm., lat. 11 mm.

Plate XIII. fig. 1.

A single specimen of this remarkable insect is all that has been found. The thorax is straight at the sides, with the hind angles much less rounded than in the other species. The front tibiae are broad, strongly crenulate on their outer margin. The middle and hind tibiae are remarkably thick, and have each a sharp denticle, externally, below the middle.

The thick legs, and the angular apex of the elytra, will render this form unmistakeable. I have named it in honour of Mr C. O. Waterhouse, who described this interesting genus.

Hab. Kauai (Perkins).

(2) *Apterocyclus munroi*, sp. nov.

♂ Niger, opacus, epistomate elongatim prominulo; elytrorum margine laterali alte elevato; tibiis anterioribus apicem versus latioribus, externe crenulatis, medio dente parum prominulo, angulo apicali bidentato. Long. corp. sine mandib. 16½—18 mm., lat. 8½ mm.

This species is very distinct by a number of structural characters. The mandibles are slender, and in addition to the small tooth near the base, bear one or two very minute tubercles, which are sometimes partly worn off, probably by attrition. The epistome is much longer; the head is comparatively narrow, the side not in the least prominent in front of the eye; mentum less transverse. Thorax less rounded at the sides than it is in *A. varians.* Side margin of elytra strongly elevated. The anterior tibiae differently shaped (Pl. XIII. fig. 3) from those of *A. waterhousei* and *A. honoluluensis.* The hind legs straighter, less dilated at the tips, and with more hair. I am indebted to Mr G. C. Munro for this species. He found four specimens on Kauai above Kaula in July, 1897.

HAB. Kauai (Munro as above).

(3) *Apterocyclus adpropinquans*, sp. nov.

♂ Niger, opacus, epistomate elongatim prominulo; elytrorum margine laterali modice elevato; tibiis anterioribus ad apicem acute bidentatis, praeterea fere muticis. Long. 17 mm.

This differs from *A. munroi,* to which it is at first sight extremely similar, by the more circular elytra with less elevated lateral margin, and by the shape of the front tibiae (Plate XIII. fig. 4), which expand more abruptly at the tip and have the notch between the two apical angles deeper, while above this they are almost unarmed on the outer edge, there being only a trace of one tooth. Besides this the mandibles are more slender, and their upper surface is less flat and less punctate. Only one specimen has been found, and it remains to be seen whether the capture of more examples would show it to be a variety of *A. munroi.*

HAB. Kauai: Makaweli, 2000—3000 ft., in May or June, 1894 (Perkins).

(4) *Apterocyclus varians,* sp. nov.

♂ Niger, subdepressus, opacus; epistomate medio prominulo; cantho oculari distincto; elytris margine laterali obsoleta; scutello angusto apice fere acuminata; tibiis anterioribus apice lata, fere truncata. Long. corp. sine mandib. 14—18½ mm.; lat. 7¼—9 mm.

This is a rather variable species, one specimen having the head and thorax shining. One small male, with the mandibles slender and bearing only a small tooth, approaches *A. feminalis.* We have received nine specimens, and most of them are in very bad condition, having apparently been found dead.

The type specimen has the elytra distinctly divergent at the tips; the front tibiae (Pl. XIII. fig. 5) very broad, with the tip obliquely truncate though just perceptibly emarginate, and the middle tibiae without any trace of a tooth on the outer margin. The other specimens vary in these points; in fact no two specimens are quite alike.

HAB. Kauai: Mounts Waimea, 5000 ft. v. 1894 (6 specimens); Koholuamano, IV. 1895 (1 specimen); 4000 ft. VII. 1896 (2 specimens) (Perkins).

(5) *Apterocyclus honoluluensis* Waterhouse.

A. honoluluensis ♀ Waterhouse, Tr. ent. Soc. London, 1871, p. 315, fig. p. 316.

There being two species mixed under the name of *A. honoluluensis* (see *deceptor*), Mr Waterhouse has selected the supposed female as the type of the species, it being the individual he figured. It is however a male specimen. The following diagnosis may help to its determination should it be ever again met with.

Niger, opacus, subdepressus, elytris rotundatis; epistomate recte truncato, sat elongato; capite latissimo, cantho oculari sat prominulo; tibiis anterioribus ad apicem oblique truncatis; tibiis posterioribus subrotundatis; tibiis omnibus edentatis. Long. 16½ mm.

Hab. Kauai: mountains, 4000 ft. (Harper Pease).

(6) *Apterocyclus deceptor*, sp. nov.

A. honoluluensis ♂, Waterhouse, Tr. ent. Soc. London, 1871, p. 316.

Niger, peropacus, epistomate medio leviter prominulo, fortiter punctato; capite sat lato, cantho oculari fere nullo; prothorace margine parum arguta; elytris marginibus elevatis fere nullis; tibiis anterioribus ad apicem oblique truncatis, intermediis externe minute uni-denticulatis. Long. 14½ mm.

When Mr Waterhouse described *A. honoluluensis* he was under the impression that the differences between the two individuals before him were sexual. He has since ascertained by dissection that both of them are certainly males, and that there is a distinct difference in the genitalia of the two. The supposed male of the species is therefore here characterised as a new species; the only individual known being in the national collection at the British Museum.

Hab. Kauai: mountains, 4000 ft. (Harper Pease, in Brit. Mus.).

(7) *Apterocyclus feminalis*, sp. nov.

Minus depressus, piceus, subnitidus; mandibulis sat elongatis, edentatis; prothorace punctulato, lateribus rotundatis, marginibus tenuibus; tibiis anterioribus ad apicem rotundato-truncatis. Long. corp. sine mandib. 14 mm., lat. 7½ mm.

Plate XIII. fig. 2.

We have only a single individual to represent this form. It has to some extent the characters of a female, but in others is more like a male. It may not improbably be the female of *A. adpropinquans*. The mandibles are only sinuate on their inner margins, and are more like those of a degenerate male than of a female Lucanid; they are widely separated, and there is no trace of a labrum between them. The terminal ventral plate is longer than it is in the other forms.

Hab. Kauai: 4000 ft. July, 1896. Found under cow-dung (Perkins).

Fam. DERMESTIDAE.

LABROCERUS Sharp.

Labrocerus Sharp, Tr. Dublin Soc. III. 1885, p. 148.

A correction should be made in my original description of the genus. The prosternal process is not "broad and flat," but delicate, narrow and feebly carinate along the middle.

(*a*) Thorax with an abruptly defined basal lobe.

Elytra not marked with yellow, **Group 1,** p. 406.

Elytra marked with yellow, or entirely yellow, **Group 2,** p. 408.

(*b*) Thorax with indefinite basal lobe.

Elytra not marked with yellow, **Group 3,** p. 409.

Elytra marked with yellow, or entirely yellow. **Group 4,** p. 410.

Group 1.

(1) *Labrocerus moerens*, sp. nov.

Niger, antennis articulis 3° et 4° flavescentibus; pubescens, elytris fascia maculisque pubescentiae griseae plus minusve distincte ornatis. Long. 3½ mm.

Plate XIII. fig. 14.

This is a rather variable species in size, and in convexity, as well as in the distinctness of the marks caused by the grey pubescence that exists on the elytra. In the male the basal two joints of the antennae (Pl. XIII. fig. 15) are small and black, the third and fourth joints are small and yellowish, the next six joints are, each one, decidedly transverse (the fifth joint though transverse is only slightly so), the terminal joint is as long as the four preceding together, but is not broader than the tenth; it is very distinctly emarginate on the inner side, near the base, so as to give rise to a slight appearance of curvation. In the female antenna (Pl. XIII. fig. 15*a*), the club is black, the ninth and tenth joints are short, transverse, the eighth is small, and from this to the very small third joint the colour is yellowish, the first and second joints being quite black. The prothorax is shining, but bears a good deal of pallid hair; its basal median lobe is large and considerably elevated. There is much granular sculpture at the base of the elytra: the pubescence is well-marked, and some of it is grey, so as to form one or more faint, very irregular, fasciae (a character that varies very much). The legs are blackish, the apical parts of the tarsi strongly infuscate yellow. Thirty specimens.

HAB. Kauai. Koholuamano; Halemanu, 4000 ft. 1895; mts. Waimea, 4000 ft. 1894; high plateau, VIII. 1896 (Perkins).

(2) *Labrocerus gravidus*, sp. nov.

Niger, antennis sordide fulvis; elytris pube grisescente plus minus variegatis. Long. $3\frac{1}{2}$—4 mm.

Closely allied to *L. moerens* but readily distinguished by the colour and form of the antennae, which are much paler, and in the male more largely developed than they are in *L. moerens*. The basal joint is piceous-yellow, the others yellow, more or less dusky. In the male the third joint is very small, the fourth is more than twice as large, sixth—tenth transverse, eleventh very long, about as long as the five preceding it. In the female the antennae are very much like those of *L. moerens*, except for the pallid colour. The characters of the elytra and thorax are very much those of *L. moerens*. The legs are usually paler in colour. Eleven specimens.

HAB. Hawaii. Kilauea, VII. and VIII. 1895, VIII. 1896; Kona, 3000 ft. VI. 1892 (Perkins).

(3) *Labrocerus simplex*, sp. nov.

Niger, antennis flavescentibus, elytris pube fusco-nigra fere aequaliter vestitis. Long. $3\frac{1}{4}$ mm.

This is smaller than *L. gravidus*, and the pubescence is darker and shows very little trace of any pattern, and the male antennae are smaller with considerably shorter terminal joint. Seven specimens.

HAB. Hawaii. Kona, 5000 ft. 30. VI. 1892; Kilauea, VII. 1895 and VIII. 1896 (Perkins). ? Var. from Maui, Haleakala, 3000—4000 ft. IV. 1894 (Perkins).

(4) *Labrocerus concolor* Sharp.

Labrocerus concolor Sharp, Tr. Dublin Soc. III. 1885, p. 149.

Mr Perkins has found only one specimen of this species; it is a female and agrees well with the unique male on which I based the species. It is robust with a very shining thorax; the elytra have much granular punctuation at the base, the pubescence is darker than in most of the other forms, and there are no fasciae on the elytra.

HAB. Hawaii, Kilauea, VIII. 1895 (Perkins).

(5) *Labrocerus curticornis*, sp. nov.

Niger, robustus, convexus, late ovalis, sat nitidus, elytris fascia maculisque pubescentiae grisescentis, maris antennis articulis 2°—7^{m} testaceis. Long. $3\frac{1}{2}$ mm.

Nearest to *L. concolor*, but with a well-marked development of the pale setosity, and with the antennae of the male shorter than in the allied forms. We have only one specimen. The apical joint of the antenna is shorter than in the other species of this group, and distinctly narrower towards its extremity, the penultimate joints are not so strongly transverse. The pubescence on the middle of the thorax is black, at the sides grey. The elytra are shining black, the post-basal fascia of grey pubescence and the two spots behind the middle are quite definite, although the hairs forming them are not dense. The tarsi are yellowish.

HAB. Oahu, Waianae Coast, I. 1901 (no. 780, Perkins).

(6) *Labrocerus laticornis*, sp. nov.

Niger, antennis articulis 3—6 pallidioribus; elytris fasciis indistinctis pubescentiae pallidae. Long. $2\frac{3}{4}$—$3\frac{1}{4}$ mm.

A small narrow form, with short broad antennae in the male; in this sex the intermediate joints of the antennae are only slightly paler, the fifth, sixth and seventh joints are very short, transverse, eighth—tenth also very short, strongly transverse, terminal joint large, as long as the four or five preceding joints together. The thorax is shining, but bears some pallid hairs, the basal lobe is strongly developed. There is a good deal of pale hair on the elytra, but it forms only ill-defined fasciae. The legs are black. Two specimens.

HAB. Molokai, Pelekunu, X. 1893 (Perkins).

Group 2.

(7) *Labrocerus jaynei* Sharp.

Labrocerus jaynei Sharp, Tr. Dublin Soc. III. 1885, p. 148.

I assign to this species a series of 21 specimens found by Mr Perkins on various occasions on the island of Maui. Certain of the specimens are small, narrow and depressed in form, and have the yellow marks on the elytra more or less reduced in extent. In more convex specimens the yellow marks may be much more extensive, and in one or two the front part of the thorax is red.

HAB. Maui, Lanai.—Maui: Haleakala, 5000 ft. V. 1896; Olinda, 3000—4000 ft. V. 1896.—Lanai, 3000 ft. II. 1894 (Perkins).

(8) *Labrocerus obscurus* Blackburn.

Labrocerus obscurus Blackburn, Tr. Dublin Soc. III. 1885, p. 149.

The type in the British Museum is in a very dirty state, but I believe it will prove to be a species very closely allied to *L. jaynei*.

HAB. Hawaii; Mauna Loa, about 6000 ft. found by beating dead branches (Blackburn).

(9) *Labrocerus* sp.

A single specimen found at Waimea, Kauai, belongs apparently to a species very near *L. jaynei*, or rather to some of the varieties of that species. It is a female and has an additional red mark in the form of a small spot on each side of the scutellum.

HAB. Kauai, Waimea (Perkins).

Group 3.

(10) *Labrocerus obsoletus*, sp. nov.

Niger, antennis pedibusque flavis, thorace rufescente, elytris testaceis, vage fulvo-signatis, sutura anguste nigra. Long. 4 mm.

We have three females of this species which is readily distinguished from all others of this section by its colour. It is of rather elongate form and has only obsolete sculpture. The elytra are pallid, but bear evidence of the black colour of other species in the form of vague or obsolete darker places; there is a pallid pubescence, and but little black setosity. The entirely pale legs contrast with the rest of the colour of the under surface.

HAB. Maui, Haleakala, 4000 ft. v. 1896 (Perkins).

(11) *Labrocerus dasytoides*, sp. nov.

Niger, antennis articulis 2°—3°, vel 2°—5° testaceis; supra crebre evidenter punctulatus, nigro-setosus, elytris pubescentia grisea vix perspicue ornatis. Long. 3—3½ mm.

The male has thick antennae, with joints four—ten distinctly transverse, the eleventh joint thick, as long as the four preceding together. The number of joints that are yellowish varies a little, but is usually greater in the female than in the male, but the club is always quite black. Seventeen specimens.

HAB. Kauai. Makaweli, 2000 ft. VI. and VII. 1894; Koholuamano, 4000 ft. IV. 1895; mts. Waimea, 3000 ft. V. 1894; high plateau, VIII. 1896 (Perkins).

(12) *Labrocerus vestitus*, sp. nov.

♀ Niger, antennis 2°—9^{m} flavis; supra crebre subtiliter punctatus, griseo-setosus. Long. 3½ mm.

Apparently closely allied to *L. dasytoides*, though looking different on account of the pallid setosity, by which character and the paler antennae it is readily distinguished. Two specimens.

HAB. Hawaii. Kona, 4000 ft. 26. VI. 1892; and Kilauea, VIII. 1895 (Perkins).

(13) *Labrocerus flavicornis*, sp. nov.

♀ Niger, minus convexus, antennis flavis articulo basali piceo, pedibus fusco-testaceis; subtiliter punctatus, breviter griseo-pubescens. Long. $3\frac{1}{4}$ mm.

A single female is all we have to represent what is clearly a distinct species, and probably allied to *L. vestitus.* It differs markedly by its clear yellow antennae, which are provided with a smaller, less compact, club than usual. The much shorter, and less conspicuous clothing of the upper surface may, in part, be due to attrition.

Hab. Hawaii, Kilauea, VIII. 1896 (no. 656, Perkins).

Group 4.

(14) *Labrocerus setosus*, sp. nov.

♀ Niger, longius pallido-setosus, elytris fascia post-basali maculisque ante apicem pallidis, antennis articulis 2° ad 6^m pallidis. Long. $3\frac{3}{4}$ mm.

Distinguished from the following species by its larger size, black legs, and by the fact that there is much black hair mixed with the pale pubescence. Two specimens.

Hab. Oahu (Perkins).

(15) *Labrocerus pallipes*, sp. nov.

Niger, convexus, pallido-setosus, antennis pedibusque pallidis, elytris fascia post-basali maculisque ante apicem pallidis. Long. 3—$3\frac{1}{2}$ mm.

This species varies in colour, the black being sometimes much reduced, so that the under surface, and even the front of the thorax, may be largely pallid. The antennae of the male are not very thick, so that joints eight—ten are not strongly transverse, the terminal joint is about as long as the four preceding together. Four specimens.

Hab. Molokai, 3000 ft. 24. VI. 1893 (Perkins).

(16) *Labrocerus affinis*, sp. nov.

Niger, parum convexus, antennis testaceis clava fusca, tibiis tarsisque fusco-testaceis; pallido-setosus, elytris fascia post-basali maculisque ante apicem testaceis. Long. $2\frac{2}{3}$—$3\frac{1}{2}$ mm.

The antennae of the male of this species are rather more slender and a little longer than usual, so that the penultimate and antepenultimate joints are scarcely—if at all—transverse. This, and the more slender form of the insect, distinguish it from *L. pallipes.* Eleven specimens.

Hab. Oahu, Mokuleua, IV. and V. 1901 (Perkins).

(17) *Labrocerus quadrisignatus*, sp. nov.

♀ Niger, parum convexus, pubescens, antennarum basi tibiisque rufis, tarsis sordidis; elytris signatura post-basali maculaque ante-apicali testaceis. Long. $3\frac{1}{4}$ mm.

Resembles *L. jaynei*, but is readily distinguished by the obscure separation of the basal lobe of the thorax. We have only females. The upper surface has much setosity. The punctuation is fine and rather indistinct, but is nevertheless a true, impressed punctuation. Five specimens.

HAB. Maui, Haleakala, 4000—5000 ft. v. 1896 (Perkins).

(18) *Labrocerus suffusus*, sp. nov.

♀ Niger, pallido-setosus, parum convexus, antennarum basi, pedibus elytrisque testaceis, his ad basin late ad suturam anguste nigris. Long. $3\frac{1}{2}$—$3\frac{3}{4}$ mm.

Distinguished from all the other species of this group by the yellow colour of the elytra, in which respect it resembles *L. obsoletus* of the preceding group. The legs have both the tarsi and femora much infuscate and the club of the antenna is quite black. There are some black hairs on the margins of the elytra. There is a fine, rather distant punctuation on the upper surface, but on the elytra this is very indistinct except at the base. Two specimens.

HAB. Maui, Haleakala, 5000 ft. v. 1896 (Perkins).

ARGOCERUS, gen. nov.

♂ Antennae clava magna oblonga, biarticulata, articulo ultimo praesertim grande, articulis 3^{o}—9^{m} minutis. Palpi maxillares breves, crassi.

This genus is closely allied to *Labrocerus*, but with very different antennae in both sexes: the terminal joint being elongate, the tenth joint large and coadapted with the terminal one to form a two-jointed club, while the preceding joints are minute and difficult to count.

(1) *Argocerus similaris*, sp. nov.

Sat convexus, niger, pubescentia sat elongata vestitus, elytris fasciis duabus pubescentiae pallidae discretis; antennis articulis 9° et 10° testaceis, clava biarticulata fusco-nigra. Long. $2\frac{1}{2}$ mm.

This has a great similarity to *Labrocerus moerens*. The upper surface is covered with a dense, indefinite sculpture rendered more obscure by the clothing of hairs; the thoracic lobe is well developed. In the male the terminal joint of the antenna (Plate XIII. fig. 16) is oblong, three times as long as broad, and the ninth joint is about as long as broad, and almost as broad as the terminal joint, thus forming a great contrast to the minute ninth joint. In the female the club is much smaller, but is also two-jointed, the terminal joint being rather longer than broad, the tenth about as long as broad. Ten specimens.

There is one specimen (Halemanu, 4000 ft. v. 1895), of rather larger size and more shining: approaching in fact *A. subguttatus.*

HAB. Kauai. Mts. Waimea, 3000—4000 ft. v. 1894; Halemanu, 4000 ft. v. 1895 (Perkins).

(2) *Argocerus subguttatus*, sp. nov.

Convexus, niger nitidus, pube minus dense vestitus, elytris maculis quatuor testaceis vix discernendis, fasciis duabus pubescentiae pallidae, antennis pedibusque sordide testaceis, illis clava nigra. Long. 3½ mm.

Apparently closely allied to *A. similaris* but distinguished by its larger size, more shining surface, with less punctuation and pubescence, and by the rather more slender club of the antennae. The reddish marks on the elytra are probably variable. We have only two specimens, both females.

HAB. Kauai, mts. Waimea, 4000 ft. v. 1894 (Perkins).

EOCERUS, gen. nov.

Corpus depressum. Antennae parvae, clava biarticulata. Palpi maxillares breves, articulo ultimo lato. Prosternum processu brevissimo. Coxae intermediae sat distantes, canalicula inter eas subobsoleta. Lamina coxarum posteriorium sat magna.

Only the female is known of this genus. The insect somewhat resembles a flat *Labrocerus*, but is quite distinct on account of the very imperfect groove for the reception of the prosternal process, which itself is so minute as to be difficult to detect. The process scarcely projects behind the front coxae and the slight groove on the mesosternum is not for the reception of the process but merely a guide to it during motion.

The female of the genus *Argocerus* is adequate for establishing the status of the genus *Eocerus*, as it also has the prosternal process obsolete; but in it the mesosternum has a definite grove, and the coxae are more approximate, and the breast less deplanate. The female of *Argocerus* has, too, a large tenth joint of the antenna, *Eocerus* a small one.

(1) *Eocerus depressus*, sp. nov.

♀ Depressus, niger, pube brevi vestitus, antennis testaceis clava fusca, tarsis fusco-testaceis; prothorace subtiliter granulato, elytris crebre punctatis. Long. 3¼ mm.

Antennae about as long as the thorax, terminal joint rather large, pointed oval, truncate at the base, tenth joint very short, about as broad as the terminal one, third—

ninth joints very minute, thorax sinuate at the base, so that the middle is longest, but without definite lobe, the surface rather evenly covered with a fine granular sculpture. Elytra with an irregular but distinct punctuation, shining. Three specimens.

HAB. Kauai, high plateau, VIII. 1896 (Perkins).

ATTAGENUS Latreille.

Attagenus Latreille, Gen. Crust. et Ins. II. 1807, p. 32.

(1) *Attagenus plebeius* Sharp.

Attagenus plebeius Sharp, Tr. Dublin Soc. III. 1885, p. 147.

This species apparently varies greatly in the extent of the pale fascia of the elytra.

HAB. Oahu, Kauai.

CRYPTORHOPALUM Guérin-Méneville.

Cryptorhopalum Guér., Ic. Règn. anim. Ins. 1838, p. 67.

(1) *Cryptorhopalum terminale* Sharp.

Cryptorhopalum terminale Sharp, Tr. Dublin Soc. III. 1885, p. 150.

HAB. Oahu (Blackburn, Perkins); Maui (Perkins); Kauai (Blackburn); probably all the islands.

(2) *Cryptorhopalum brevicorne* Sharp.

C. brevicorne Sharp, l. c.

Mr Perkins has found three or four specimens only. They apparently vary greatly, so that I am not sure that all are one species.

HAB. Oahu (Blackburn); probably all the islands.

DERMESTES Linnaeus.

Dermestes Linnaeus, Syst. Nat. II. 1767, p. 561.

(1) *Dermestes cadaverinus* Fabricius.

Dermestes cadaverinus Fabricius, Syst. Ent. p. 35.

HAB. All the islands.

(2) *Dermestes vulpinus* Fabricius.

Dermestes vulpinus Fabricius, Spec. Ins. I. p. 64.

HAB. All the islands.

Fam. COCCINELLIDAE.

An uncertain number of species of this family have been introduced to Hawaii for economic purposes since the time when Mr Blackburn formed his collections. I can give no information as to these introduced forms. They do not appear to have affected their anciently established congeners, as these apparently hold much the same position at present as they did 30 years ago.

CYCLONEDA Crotch.

Cycloneda Crotch, Cat. Coccinellidae, p. 6, and Revision of Cocc. 1874, p. 162.

(1) *Cycloneda abdominalis*, Say.

Coccinella abdominalis Say, Journ. Ac. Philad. IV. 1824, p. 95.

Neda abdominalis Sharp, Tr. Dublin Soc. III. 1885, p. 236.

Neda oculata (Fabr.), Mun. Cat. XII. p. 3770.

HAB. Kauai, Oahu, Maui, Lanai, Hawaii.—Kauai, Oahu and Maui (Blackburn).—Maui, Lahaina; Lanai, 2000 ft.; Hawaii, Kona, 2000 and 3000 ft. (Perkins).—North America and Mexico.

SCYMNUS Kugelann.

Scymnus Kugelann, Schneid. Mag. I. 1794, p. 545.

(1) *Scymnus vividus* Sharp.

Scymnus vividus Sharp, Tr. Dublin Soc. III. 1885, p. 146.

HAB. Oahu, Maui, Molokai, Lanai, Hawaii.—Maui, Hawaii, Oahu; generally at roots of herbage (Blackburn).—Oahu, Waianae mts.; Maui, Lahaina and Haleakala, over 5000 ft.; Lanai, coast and 3000 ft.; Molokai; Hawaii, Kilauea, and Kona, 4000 ft. (Perkins).

(2) *Scymnus ocellatus* Sharp.

Scymnus ocellatus Sharp, Tr. Dublin Soc. III. 1885, p. 147.

We have received fifteen specimens.

HAB. Oahu, Maui, Lanai.—Oahu and Maui, generally found on flowers (Blackburn).—Oahu, Kaala mts. over 2000 ft., &c.; Maui, Lahaina; Lanai, coast and 2000 ft. (Perkins).

(3) *Scymnus discedens* Sharp.

Scymnus discedens Sharp, Tr. Dublin Soc. III. 1885, p. 147.

We have received nine specimens.

HAB. Oahu (Blackburn); Waianae mts. 2000 ft., Kaala mts. 2500 ft., Waialua coast, (Perkins).

Fam. EROTYLIDAE[1].

EUXESTUS Wollaston.

Euxestus Wollaston, Ann. Nat. Hist. II. 1858, p. 411.

(1) *Euxestus minor* Sharp.

Euxestus minor Sharp, Tr. Dublin Soc. III. 1885, p. 145, and Pl. IV. fig. 14.

We have received 7 specimens.

HAB. Probably found outside the Hawaiian Archipelago: within the latter only known so far from Oahu (Blackburn); mts. near Honolulu, and Waianae mts. (Perkins).

EIDOREUS Sharp.

Eidoreus Sharp, Tr. Dublin Soc. III. 1885, p. 146.

(1) *Eidoreus minutus* Sharp.

Eidoreus minutus Sharp, l. c.

The wings in this species are extremely transparent; there is a more strongly chitinised part, containing one or more nervures, along the anterior margin, extending somewhat over $\frac{1}{3}$ the length of the wing: there is also a nervure, running diagonally from the base to a point on the hind margin somewhat over $\frac{1}{3}$ the distance from base to apex. No other nervures are visible. At the point where the diagonal nervure touches the hind margin, the latter has a marked angular indentation. Just on the side of this indentation, nearer to the base of the wing, is a brown pigmented patch. The whole posterior margin bears moderately long hairs.

HAB. Oahu. Two specimens (Blackburn); also one specimen from Honolulu, and one from the Waianae mts. (Perkins).

Fam. CORYLOPHIDAE[1].

SACIUM Leconte.

Sacium Leconte, P. Ac. Philad. VI. 1852, p. 142; Matthews, Monograph of Corylophidae, 1899, p. 40.

We have received specimens of a species of this genus. Comparison with the species in the British Museum of Natural History, which include the collection formed by Matthews, shows that these specimens cannot be placed in any described species. The species undoubtedly belongs to this genus, for it has eleven joints in the antennae, the eighth (just before the club) being very short and transverse; and the mouth-parts are of the type shown by Matthews in Pl. I. figs. 4, 5 and 6 of his monograph.

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[1] By Hugh Scott.

(1) *Sacium angusticolle*, sp. nov.

Oblongum, convexum, sat angustum, nitidum, pubescentiâ pallidâ, subtiliter nec densius punctatum, interstitiis laevis ; pronoto rufo, elytris nigris apicibus piceo-ferrugineis, pedibus flavo-ferrugineis, antennis flavis clavâ obscuriore ; pronoto angusto, sat elongato, antrorsum ovaliter rotundato, margine vix reflexâ, basi haud fortiter sinuatâ, angulis fere rectis, lineâ basali haud profundâ. Long. $\frac{3}{4}$—$1\frac{1}{8}$ mm.

This species is distinguished by its small size ; by the fine punctuation and smooth shining interstices ; by the black elytra with no lighter colour except at the extreme apex ; and by the pronotum, which is red, paler in front, narrow, rather long, distinctly narrowed in front, so that the outline forms an elliptic curve, with the margin hardly reflexed.

Eight specimens. One specimen, from which the lower length measurement is taken, is conspicuously smaller than all the others.

HAB. Hawaiian Is. Two specimens recorded from Oahu, one being from Kaala mts. 2500 ft. ; the other six have no quite certain particulars, but are almost certainly from Oahu (Perkins).

ANISOMERISTES Matthews.

Anisomeristes Matthews, Ent. Mo. Mag. XXII. 1886, p. 225 ; Mon. p. 108.

This genus is separated from *Sericoderus* chiefly by the antennae having eleven joints, while those of *Sericoderus* are ten-jointed.

(1) *Anisomeristes basalis*, Sharp.

Sericoderus basalis Sharp, Tr. Dublin Soc. III. 1885, p. 127.

Anisomeristes basalis Matthews, Mon. p. 112.

This is a somewhat broad form with conspicuous pubescence. It is of yellowish colour, with the basal parts of the elytra dark ; in the specimens found by Blackburn this portion is black, but in two specimens (both unfortunately in bad preservation) received from Mr Perkins, it is less dark, in one being only somewhat infuscated. The terminal dorsal segments of the body are dark.

HAB. Oahu. From the salt marshes in the plains (Blackburn). No particulars as to locality (Perkins).

SERICODERUS Stephens.

Sericoderus Stephens, Ill. Brit. Mand. II. 1829, p. 187 ; Matthews, Mon. p. 115.

(1) *Sericoderus pubipennis* Sharp.

Sericoderus pubipennis Sharp, Tr. Dublin Soc. III. 1885, p. 128; Matthews, Mon. p. 121.

We have received seventeen specimens. The colour varies somewhat, from lighter and more yellow to ferruginous more or less infuscate. The clubs of the antennae are usually infuscate. There is also variation in size, the length being from about $\frac{3}{4}$ to 1 mm.

HAB. Oahu, Maui, Lanai, Hawaii.—Oahu: various mountain localities (Blackburn); Kaala mts. 2500 ft.; Waianae mts., beaten from dead Koa branches, 2000—3000 ft. (Perkins).—Maui: various mountain localities (Blackburn).—Lanai: 2000 ft. (Perkins).—Hawaii: Kona, from Kukui trees 2500 ft., from fungi about 4000 ft. (Perkins).

CORYLOPHODES Matthews.

Corylophodes Matthews, Ent. Mo. Mag. XXII. 1885, p. 160, Mon. p. 145.

Ex parte *Corylophus* Sharp, Tr. Dublin Soc. III. 1885, p. 127.

(1) *Corylophodes rotundus*, Sharp.

Corylophus rotundus Sharp, l. c.

Corylophodes rotundus Matthews, Mon. p. 156.

We have not received this species from Mr Perkins.

HAB. Oahu. Near Honolulu (Blackburn).

(2) *Corylophodes suturalis*, Sharp.

Corylophus suturalis Sharp, l. c.

Corylophodes suturalis Matthews, Mon. p. 157.

We have not received this species from Mr Perkins.

HAB. Oahu. "Occurs at roots of grass on the Nuuanu Pali," 2000 ft. (Blackburn).

ORTHOPERUS Stephens.

Orthoperus Stephens, Ill. Brit. II. 1829, p. 186; Matthews, Mon. p. 180.

Orthoperus aequalis Sharp.

Orthoperus aequalis Sharp, Tr. Dublin Soc. III. 1885, p. 128; Matthews, Mon. p. 194.

Comparison of this species with others of the genus in the British Museum shows that it is distinguished by its form being a narrow, elongate oval; by the numerous distinct punctures; by the whole surface being finely alutaceous; and by the colour, which is not dead black, but a kind of pitchy, with a certain amount of yellowish, so to speak, showing through. A few specimens are decidedly lighter; one, probably immature, is yellow. The legs are yellowish, the antennae the same with the club infuscate. Length about $\frac{3}{4}$ mm. There is slight variation in size; the specimen originally described is rather small. Thirty-nine specimens.

HAB. Hawaii, Maui.—Hawaii: Mauna Loa, about 4000 ft. (Blackburn); Kona, 4000 ft. and over, some recorded from dead wood and from fungi on Koa tree (Perkins).—Maui: Haleakala 5000 ft., four specimens (Perkins).

Fam. MYCETOPHAGIDAE (=TRITOMIDAE)[1].

LITARGUS Erichson.

Litargus Erichson, Nat. Ins. III. 1846, p. 415.

Subgenus ALITARGUS Casey.

Alitargus Casey, J. N. York Ent. Soc. VIII. 1900, p. 136.

Pubescence confusedly arranged, without widely separated series of longer semi-erect hairs. Epipleurae strongly concave, deeply descending. Epistoma trapezoidal. Pronotal punctures simple. Last antennal joint elongate, the tip obliquely and rectilineally truncate.

(1) *Litargus balteatus* Leconte.

Litargus balteatus Leconte, P. Ac. Philad. 1856, p. 14.

Alitargus balteatus Casey, l. c.

We have received several specimens which agree closely with Casey's description (l. c.), and also with specimens in the British Museum determined by Dr Sharp as *L. balteatus* (Biol. Centr.-Am. II. 1, p. 639). The Hawaiian specimens exceed in size the typical *L. balteatus* as described by Casey, and in this and other respects seem to come close to the var. *transversus* Lec., even if they are not identical therewith.

The form is rather parallel-sided, not tapering much posteriorly. Convexity moderate. Sinuations in the base of the prothorax small but evident; in front of each of them is a very vague depression on the posterior part of the disc. Pubescence yellowish, conspicuous. In the larger specimens (of the *transversus* form) the colour is piceous or black, with pallid testaceous markings, which vary somewhat in arrangement, on the elytra; usually there is a conspicuous humeral and post-scutellar light area, and a transverse post-median band. There is a small patch of paler pubescence on the sloping sides of the elytra anteriorly, a little behind the humeral light area. Clubs of the antennae dark.

Some specimens are rather smaller and lighter, being rufo-piceous with the pallid markings variable. One of these is more tapering posteriorly than the rest. I can however find no character clearly separating them from the larger specimens; probably they approach more to the typical form of the species. Specimens very much the same in colour were included by Dr Sharp as *L. balteatus*. Legs testaceous. Antennae usually darker. Length 2—2½ mm. Eleven specimens.

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[1] By Hugh Scott.

HAB. Lanai, Maui, Hawaii.—Lanai: 2000 ft., several "near Koele."—Maui: Haleakala, 4000—5000 ft.—Hawaii: Kona, 3000 ft. (Perkins).—North America, Central America (see Sharp, l. c.).

Subgenus LITARGELLUS Casey.

Litargellus Casey, J. N. York Ent. Soc. VIII. 1900, p. 136.

Pubescence confusedly arranged, without widely separated series of longer semi-erect hairs. Epipleurae strongly concave, deeply descending. Epistoma trapezoidal. Pronotal punctures minute, slightly elevated, subannulate. Last antennal joint short, broadly arcuato-truncate at apex.

(2) *Litargus vestitus* Sharp.

Litargus vestitus Sharp, Tr. Ent. Soc. London, 1879, p. 88.

There seems little doubt that this species belongs to Casey's subgenus *Litargellus*, though the terminal joints of the antennae might perhaps be better described as broadly acuminate apically. In other respects it closely agrees with the definition of the subgenus. The suture between epistome and frons is very obsolete.

The species is characterised by its regularly oval form, the thorax narrowing in front, and the elytra behind, so as to form a perfectly continuous outline. It is also characterised by the dark ferruginous colour, with warm testaceous markings on the elytra. The legs and antennae are yellowish, the clubs of the latter sometimes very slightly darker. Sinuations in the base of the pronotum small but evident; no depressions visible on the pronotum. Length 1¾—2 mm.

Nine specimens received from Mr Perkins.

HAB. Oahu, Lanai, Hawaii.—All three islands: in bark at considerable elevations (Blackburn).—Oahu: Waialua; Waianae mts. 2000—3000 ft.; Kawailoa gulch; near Honolulu. Several times recorded as obtained by beating, from dead Koa branches, native apple tree, &c. (Perkins).

TYPHAEA Kirby.

Typhaea (Kirby) Stephens, Ill. Brit. III. 1830, p. 70.

(1) *Typhaea fumata* Linnaeus.

Dermestes fumatus Linnaeus, Syst. Nat. I. 2, p. 564; Sharp, Tr. Dublin Soc. III. 1885, p. 235.

HAB. Oahu, Maui (Blackburn, Perkins). Cosmopolitan.

Propalticus Sharp.

Propalticus Sharp, Tr. Ent. Soc. London 1879, pp. 88, 89.

A description of the generic characters, taken from *P. oculatus*, is given here, as the original description was not quite complete, and was incorrect as to the form of the antennae and the number of tarsal joints.

The antennae (Plate XVI. fig. 13) when mounted in balsam and examined under a high power are seen to be very remarkable. They are 15-jointed (or 14-jointed, if the terminal part of the club is regarded as only one joint). Basal joint very short: joints 2 and 3 large, each about twice as long as broad: joints 4—9 very slender, subequal, the proximal one the longest. Joint 10 is large, broad, dark-coloured: 11 is light-coloured, slender but with a broad base, the slender part arising right at one side of the distal surface of joint 10. Joint 12 is a large dark joint of the same nature as 10, and 13 is a slender light joint repeating the characters of 11. Joint 14 is a dark broad piece much like 10 or 12: 15 is also dark, rounded apically, and curiously excavated on one side, so as to present a very singular form: line of division between 14 and 15 not so well-marked as that between other joints of the antenna.

Eyes large, not very prominent, encroaching greatly on the upper surface of the head. No transverse suture marking off the epistome from the frons and vertex. Labrum large, distinct, transverse, rounded in front, leaving the points of the mandibles exposed. Mandibles with a large basal portion, and a rather slender apical portion; the latter is trifid at the extremity, two points being visible from above, a third from below. Maxillae with a rather large, pubescent outer lobe, and an extremely slender inner lobe: palpi stout, 3-jointed; apical joint not at all dilated, about three times as long as broad; middle joint about as long as broad; basal joint rather stouter. The labium, mounted in balsam, shows the following characters. The mentum is a transverse piece: the ligulá is a single piece, but with indications of a median division anteriorly; its front margin is entire, nearly straight. Labial palps 3-jointed; basal joint minute, nearly as broad as long; second and third joints much stouter, the second considerably longer than broad, the third more than twice as long as broad and tapering distally, but with actual apex blunt. Prosternum large; coxae placed at its hind part, very widely separated, small, with an extension in the anterior and outward direction, their cavities not closed behind. Mesosternum broad and transverse: middle coxae globose, widely separated. Hind coxae transverse, very widely separated. Ventral segments five, the basal one as long in the middle as the two following. Elytra covering the body. Epipleurae almost flat, sloping somewhat.

Dr Sharp (op. cit. p. 90), though doubtful, considered that the tarsi were probably 4-jointed. Canada Balsam preparations show, however, that they are undoubtedly 5-jointed. They are filiform, the first four joints short and subequal in length, the terminal joint nearly as long as the other four together. Legs slender; front tibiae longer than the other two pairs, and each with an articulated spur (Plate XVI. fig. 14) below the tarsus, as long as the four basal joints of the tarsus. The other tibiae are devoid of such spurs. The fact that the tarsi are 5-jointed, and the form of the antennae, make the systematic position of this genus quite doubtful. It is here retained merely provisionally in Mycetophagidae.

(1) *Propalticus oculatus* Sharp.

Propalticus oculatus Sharp, op. cit. p. 88.

Plate XVI. fig. 12.

We have received seven specimens of this remarkable little beetle. The general colour above is a very dark ferruginous. The punctures are close but not very marked. The expression in the diagnosis "fere nudus" seems hardly correct; for the body is covered with a very short decumbent pubescence, inconspicuous except over certain patches near the base of the thorax and on the elytra, where the hairs are very pale. The legs are testaceous.

HAB. Oahu, Maui, Hawaii.—Oahu, Maui; also stated (Sharp, op. cit. p. 89) to have occurred in Kauai; in dead wood in all kinds of localities; it is an extremely agile jumper (Blackburn).—Oahu: Kaala mts.; mts. near Honolulu (Perkins).—Hawaii, Kona, 2500 ft. (Perkins).

Fam. MYCETAEIDAE.

MYCETAEA Stephens.

Mycetaea Stephens, Ill. Brit. III. 1830, p. 80.

(1) *Mycetaea hirta*, Marsh.

Silpha hirta Marsham, Ent. Brit. I. p. 124.

Mycetaea hirta Sharp, Tr. Dublin Soc. III. 1885, p. 235.

Mr Perkins has not obtained this species.

HAB. Oahu. A single specimen taken in the Pauoa valley near Honolulu (Blackburn). Introduced.

Fam. LATHRIDIIDAE[1].

LATHRIDIUS Herbst.

Lathridius Herbst, Käf. V. 1793, p. 3.

(1) *Lathridius nodifer* Westwood.

Lathridius nodifer Westwood, Int. Class. Ins. I. p. 155 and Pl. 13, fig. 23; Sharp, Tr. Dublin Soc. III. 1885, p. 234.

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[1] By Hugh Scott.

HAB. Oahu, Maui, Lanai, Hawaii.—Oahu and Hawaii, at considerable elevations (Blackburn).—Hawaii, Kona, 4000 ft.; Maui, Haleakala, 5000 ft. and over; Lanai 3000 ft. (Perkins). Widely distributed over the world.

COLOVOCERA Motschoulsky.

Cholovocera Motschoulsky, Bull. Mosc. II. 1838, p. 177 [= *Coluocera*, Mun. Cat. III. p. 905].

(1) *Colovocera maderae* Wollaston.

Colovocera maderae Wollaston, Ins. Mader. p. 180 and Pl. X. fig. 1.

We have a single *Colovocera* from Oahu. A comparison of it with the type of *C. maderae* Woll. shows no character clearly separating the two specimens. The Oahu specimen is distinctly larger and paler, being a pale yellowish-testaceous. The elytra are decidedly acuminate apically, but so are those of the type, which I consider is represented rather too broad and rounded posteriorly in Wollaston's figure.

In all structural characters the specimens agree. The head is large and broad; the eyes lateral, consisting each of six separate facets, with some dark pigment lying between and apparently under some of them. The prothorax is short and broadest at the base. A few punctures can just be made out on the elytra under a high power. The prosternal process is prominent, broadened and not bent up posteriorly. The mesosternum consists of a short transverse piece, transversely concave, cut off straight in front (before this is a sloping portion with two shallow impressions receiving the front coxae); the metasternum has two striae curving round behind the middle coxae, and the first abdominal segment has two diverging striae curving behind the hind coxae.

The elytra are not soldered together, but examination has revealed absolutely no trace of wings; moreover the metanotum as a firmly chitinised piece does not exist, but is entirely membranous. I have examined several specimens of *Colovocera formicaria* Motsch., and found in all respects the same condition in all of them.

HAB. Oahu, mts. near Honolulu 1900 (Perkins). Madeira, in ants' nests (see Wollaston, l. c.). In the British Museum is a series of specimens from ants' nests, from Port Darwin, Australia, of the same pale colour as our specimen.

Fam. CRYPTOPHAGIDAE.

CRYPTOPHILUS Reitter.

Cryptophilus Reitter, Verh. Zool.-bot. Ges. Wien, XXIV. 1874, p. 381.

(1) *Cryptophilus integer* Heer.

Telmatophilus debilis Sharp, Trans. Dublin Soc. III. 1885, p. 145.

This little insect has now been identified as above, and I believe correctly. It is a widely distributed form, and of no interest in our Fauna.

HAB. Oahu (Blackburn); Honolulu (Perkins).

HENOTICUS Thomson.

Henoticus Thomson, Skand. Col. x. p. 67.

(1) *Henoticus serratus*, Gyllenhal.

Cryptophagus serratus Gyll., Ins. suecica, I. p. 171.

Dr Perkins informs me that he met with this insect at Kilauea, Hawaii, in the wet forest at an elevation of about 4000 feet; but I have not seen any of his specimens.

HAB. Oahu and Maui (Blackburn), Hawaii (Blackburn and Perkins).

Fam. CUCUJIDAE.

BRONTOLAEMUS Sharp.

Brontolaemus Sharp, Tr. Dublin Soc. III. 1885, p. 142.

(1) *Brontolaemus elegans* Sharp.

Brontolaemus elegans Sharp, Tr. Dublin Soc. III. 1885, p. 142, Pl. IV. fig. 16.

This was described by me from a pair presumed to be from the island of Oahu. Mr Blackburn stated that the species also occurred on Kauai, but all the Kauai examples I have seen are markedly different from those found on Oahu. I have no doubt therefore that the original types are both from Oahu. At the same time I must say that I have seen no example that agrees anything like completely with my male type; it is remarkably small, and has the punctures on the striae of the elytra unusually large. The figure, loc. sup. cit., is inexact in several particulars, especially as regards the mandibles, and the striation of the elytra. The type of the female is well matched by examples found by Mr Koebele, and which I have called var. *koebelei*. The male may probably be assigned to the Honolulu form of the species as an aberrant and worn example. I have now before me in all a series of twenty-seven examples that I assign to *B. elegans*, they were collected at various times by Mr Perkins, as well as by Mr Koebele and Mr Blackburn. Unfortunately most of them are without locality tickets and there are only four males in the whole series. They exhibit a great deal of variation.

I have already said that I have no specimen that tallies with the original male type; sixteen females agree sufficiently with the female type to treat them as *B. elegans*, though they exhibit much variation. The six other females and the four males belong to a larger form as below.

HAB. Oahu. Wakiawa, IV. 1901; Honolulu, 2000—3000 ft. V. 1896 (Perkins).

Brontolaemus elegans var. *koebelei*, var. nov.

Fusco-ferrugineus, setis depressis albicantibus ornatus, sat variegatus, corpore subtus evidentius reticulatim sculpturato; antennis elongatis, maris fere absque pubescentia. Long. 3—3½ mm.

Agrees with *B. elegans* typ. in most characters, but the individuals are rather larger than, and have considerably longer antennae. The sculpture of the undersurface is very strong.

Hab. Oahu, Waianae mts. 3000 ft. II. 1897 (Perkins).

(2) *Brontolaemus currax*, sp. nov.

Nigricans, antennis pedibusque fusco-rufis, illis elongatis apicem versus nigricantibus; elytris bene variegatis. Long. 3½—4 mm.

Head broad, deeply, impressed in front, sculpture fine. Thorax large, much narrowed behind, anterior angles distinctly prominent, front portion of the disc convex, and with a slight impression at the summit. Black marks on the elytra numerous and very distinct, scales very fine. The male has fine, long hairs on the undersurface of the antennae from the fourth joint onwards.

The antennae in this species are longer than in any other species, being 6 or 7 mm. long in each sex. Seven specimens.

Hab. Kauai. Halemanu, 4000 ft. v. 1895 and VII. 1896; Koholuamano, IV. 1895 (Perkins).

Brontolaemus currax var. *lanaiensis*, var. nov.

Antennis elongatis, articulis tribus ultimis haud omnino gracilibus, singulo ad apicem conspicuiter incrassato-nodoso.

These specimens from Lanai have the terminal three joints of the antennae less elongate than the Kauai exponents, and each more knobbed and thicker at the tip. There appears to be but little long hair on the undersides of the joints in the male. The form therefore appears to be somewhat intermediate between the two species that are found in Kauai. Twelve specimens.

Hab. Lanai, 2000—3000 ft. I. 1894; Haleapaakai, VII. 1894; mts. Koele, 2000 ft. II. 1894 (Perkins).

Brontolaemus currax var. *mauiensis*, var. nov.

Minor, gracilis, pallidior, antennis tenuibus, prothorace brevi. Long. 3 mm.

Two specimens from Maui may prove to be distinct. They have much flavescent-grey clothing like *B. currax lanaiensis*, but are smaller and have a smaller thorax; there is hair on the male antennae and the sculpture of the undersurface is not so strong as it is in *B. elegans*, which these specimens greatly resemble.

HAB. Maui, Lahaina, 2000 ft. I. 1897 (Perkins).

(3) *Brontolaemus nudicornis*, sp. nov.

Fuscus, antennis pedibusque fusco-rufis, illis apicem versus nigricantibus; minus variegatus, prothorace fortiter transverso. Long. $3\frac{1}{4}$—$3\frac{1}{2}$ mm.

This is easily enough distinguished by the fine, comparatively obsolete sculpture and the comparatively slight variegation of the upper surface, due to the minuteness of the scales; the variegation that exists being chiefly due to the colour of the surface itself. The thorax is unusually short and broad. I can find no trace of sexual hairs on the antennae of the male; they are much shorter than those of *B. currax*, and the terminal joints are comparatively stouter and blacker at their tips. Two specimens.

HAB. Kauai. Mts. Waimea, 4000 ft. V. 1894 (no. 259); high plateau, VIII. 1896 (no. 682, Perkins).

(4) *Brontolaemus agilis*, sp. nov.

Minus latus, nigricans, antennis rufo-nigris, pedibus nigro-rufis, supra squamulis, griseis flavisque bene variegatus; antennis minus gracilibus, articulis ultimis tribus minus elongatis et curvatis. Long. 3—$3\frac{1}{2}$ mm.

This is the most distinct of the species. The antennae are stouter, with a shorter terminal joint than any of the other species; the form is narrower, the head is especially narrower: the base of the thorax is quite straight, the hind-angles perfect rectangles; the colour throughout is blacker, the variegation of the elytra very conspicuous; the sculpture of the undersurface very obsolete; the tracery on the undersurface of the head, very fine and dense. Twenty-six specimens.

There is an elegant variety in which the thorax and elytra have a broad red margin.

HAB. Maui. Haleakala, 5000 ft. III. and IV. 1894; and 5000 ft. V.—X. 1896 (Perkins).

LAEMOPHLAEUS Castelnau.

Laemophlaeus Castelnau, Hist. Nat. II. 1840, p. 385.

(1) *Laemophlaeus minutus*, Olivier.

Cucujus minutus Olivier, Enc. method. VI. 1791, p. 243; Ent. IV. 74 bis, p. 8. t. I. f. 9, 1795 (nec *L. minutus* Sharp, Biol. Centr.-Am. Coleoptera, II. (1), p. 518).

Cucujus pusillus Schönherr, Syn. Ins. III. p. 55; Sharp, Tr. Dublin Soc. III. 1885, p. 233.

This cosmopolitan species frequents foul rice. Blackburn records it as occurring in the burrows of *Apate*, but I fancy this observation must refer to a closely allied species, several of which are known to be difficult to distinguish.

HAB. Oahu, Honolulu (Blackburn, Perkins).

This species was formerly called *L. pusillus*, but it has recently been said to be the *Cucujus minutus* of Olivier. If this should prove to be correct, the Central American species described by me as *L. minutus* will have to take another name.

PARANDRITA Leconte.

Parandrita Leconte, Smithsonian Misc. Coll. XXVI. 1880, p. 133.
Laemophlaeus (part.) Casey, Tr. Amer. ent. Soc. XI. 1884, p. 91.
Parandrita Sharp, Biol. Centr.-Amer. Col. II. (1), p. 536,

(1) *Parandrita aenea*, Sharp.

Laemophlaeus aeneus Sharp, Tr. Dublin Soc. III. 1885, p. 143.

Plate XIII. fig. 17.

Five specimens.

The name *L. aeneus* was preoccupied when I described this species, but as the insect is now removed to another genus and no other specific name has in the interval been proposed for it, the species may stand as *Parandrita aenea*.

HAB. Maui, Haleakala, 4500—5000 ft. V. and X. 1896 (Perkins).

(2) *Parandrita konae*, sp. nov.

Depressa, nigra, supra viridi-aenea, pedibus rufis; capite thoraceque crebre subtiliter punctatis, hoc intra latus linea impressa; elytris subtiliter striatis interstitiis fere omnino laevigatis. Long. 2¾ mm.

Extremely close to *P. aenea*, rather darker in colour, and with the striae of the elytra finer, especially at the apex; the punctuation throughout is rather more obliterated. The hind angles of the thorax are very obtuse. Five specimens.

HAB. Hawaii, Kona, 4000 ft. VIII. 1892, and 3000 ft. III. 1896 (Perkins).

(3) *Parandrita perkinsi*, sp. nov.

Depressa, nigra, supra aenea, pedibus rufis, antennis gracilibus; capite thoraceque fere dense punctatis; elytris profunde striatis. Long. 2½ mm.

This has longer and more slender antennae than *P. aenea*. The punctuation on head and thorax is finer, and the lateral lines on the latter are finer. On the other hand the striae on the elytra are very definite, and are distinctly punctured. Two specimens.

HAB. Oahu (no. 903, Perkins).

(4) *Parandrita gracilis*, sp. nov.

Angustior, depressa, nigra, supra laete aenea, nitida, antennis femoribusque piceis. tibiis tarsisque rufis; antennis apicem versus gracilibus; crebrius subtiliter punctata; elytris striatis. Long. 2½ mm.

This is of narrower form than the other species so that the head is not transverse; the punctuation is unusually fine; the striation of the elytra very definite. Unique.

Hab. Oahu, Konahuanui Ridge, xii. 1900 (no. 783, Perkins).

(5) *Parandrita molokaiae*, sp. nov.

Depressa, nigra, supra aenescens, elytris aeneo-rufis, antennis piceis, pedibus rufis; capite thoraceque crebre subtiliter punctatis, hoc intra latus linea impressa: elytris striatis, interstitiis parce punctatis. Long. 3 mm.

In this species the elytra are of a dark mahogany colour, with only a faint aeneous tinge and no trace of pallid marks. The elytra are deeply striated. There is much hair on the male antennae, and the terminal three joints are rather longer than they are in *P. aenea*. Three specimens.

Whether this and the allies may prove really distinct from *P. aenea* it is difficult to say on so small a material. They appear to be very rare.

Hab. Molokai, 22. v. 1893 and 9. vi. 1893.

(6) *Parandrita liturata*, sp. nov.

Depressa, nigra, capite thoraceque subauratis, elytris fusco-nigris, testaceo-signatis, antennis pedibus piceis, vel nigro-piceis. Long. 2½—3 mm.

This is readily distinguished by the variegate elytra, though in other respects but little different from the other Hawaiian species of the genus. The head and thorax are finely, very densely punctured, the thoracic line is very fine. The elytra are in colour about half black and half yellow, the marks consisting of about five yellow connected patches, the most distinct of which is one common to both elytra, placed about half way of the length, and surrounded by black marks separating it almost, but not quite, from the other yellow marks; they are very distinctly striated, and bear numerous extremely minute setae. Five specimens.

Hab. Maui, Hawaii.—Maui; Haleakala, 5000 ft. x. 1896.—Hawaii; Kilauea, ix. 1896 (Perkins).

PSAMMOECHUS Latreille.

Psammoechus Latreille, Règn. Anim. ed. 2, v. p. 135.

(1) *Psammoechus insularis*, Sharp.

Telephanus insularis Sharp, Tr. Dublin Soc. III. 1885, p. 143.

This insect may prove to be not distinct from *P. trimaculatus* Motsch., an insect distributed somewhat widely, and probably by commercial means.

HAB. Oahu, Kauai.

(2) *Psammoechus pallidipennis*, Blackburn.

Telephanus pallidipennis Blackburn, Tr. Dublin Soc. III. 1885, p. 144.

The type in the British Museum appears to be a quite distinct species from *P. insularis.*

HAB. Oahu; the type was found near Honolulu (Blackburn).

CRYPTAMORPHA Wollaston.

Cryptamorpha Wollaston, Ins. Mader. 1854, p. 156.

(1) *Cryptamorpha desjardinsi* Guérin-Méneville.

Psammoecus desjardinsii Guér., Ic. Règn. An. Ins. p. 196.

HAB. On all the islands.

CATHARTUS Reiche.

Cathartus Reiche, Ann. Soc. ent. France, 1854, p. 77.

(1) *Cathartus advena*, Waltl.

Cryptophagus advena Waltl., Silb. Rev. ent. II. p. 256.

HAB. Oahu (and probably all the islands).

SILVANUS Latreille.

Silvanus Latr., Gen. Crust. et Ins. III. 1807, p. 19.

(1) *Silvanus surinamensis*, Linnaeus.

Dermestes surinamensis Linnaeus, Syst. Nat. ed. X. p. 357.

HAB. Oahu, Lanai (and probably all the islands).

(2) *Silvanus unidentatus*, Fabricius.

Dermestes unidentatus Fabricius, Ent. Syst. I. p. 232.

HAB. Oahu, Honolulu (Blackburn).

NAUSIBIUS Redtenbacher.

Nausibius Redtenbacher, Faun. austr. ed. II. p. 998.

(1) *Nausibius dentatus*, Marsh.

Corticaria dentata Marsham, Ent. brit. p. 108.

HAB. Oahu (Blackburn). Probably on all the islands.

MONANUS Sharp.

Monanus Sharp, Tr. ent. Soc. London, 1879, p. 86.
Emporius Ganglbauer, Käf. Mitteleur. III. p. 586.
This genus is now known to be distributed by commercial means.

(1) *Monanus crenatus* Sharp.

Monanus crenatus Sharp, t. c. p. 85.
Found by beating *Pandanus*, Nuanu Pali. Not met with by Perkins.

HAB. Oahu (Blackburn).

(2) *Monanus brevicornis* Blackburn.

Monanus brevicornis Blackburn, Tr. Dublin Soc. III. 1885, p. 143.
Found in decaying flowers of banana, Pauon valley. Not met with by Perkins.

HAB. Oahu (Blackburn).

[Fam. RHYSODIDAE.

CLINIDIUM Kirby, Zool. Journ. V. 1835, p. 6.

(1) *Clinidium liratum* (Newman) Chevrolat.

Rhyzodes liratus (Newm.), Chevr., Ann. Soc. ent. France, 1873, p. 388; Sharp, Tr. Dublin Soc. III. 1885, p. 232.

HAB. Brazil. ?Oahu. "Honolulu," Chevrolat: not known to Blackburn or Perkins. The recording of this species from the Sandwich Islands was quite possibly due to an error: it was probably never taken there at all.]

Fam. COLYDIIDAE.

ANTILISSUS Sharp.

Antilissus Sharp, Tr. ent. Soc. London, 1879, p. 87.

The basal joint of the tarsus is much reduced, and in some aspects so concealed by the end of the tibia that the tarsus appears only 3-jointed. This character allies the genus to *Labrotrichus* Sharp (Biol. Centr.-Am. II. I. p. 446) and to *Distaphyla* Pascoe (see Sharp, l. c.).

(1) *Antilissus aper* Sharp.

Antilissus aper Sharp, op. cit. p. 86.

We have received about 80 specimens of this species, which is so far known only from the Hawaiian Archipelago.

Hab. All the islands. Oahu, mountain localities (Blackburn); all the islands, frequently from considerable elevations (Perkins). H. S.

MINTHEA Pascoe.

Minthea Pascoe, Journ. of Ent. II. 1863, p. 97.

(1) *Minthea rugicollis*, Walker.

Ditoma rugicollis Walker, Ann. Nat. Hist. (3) II. p. 206.

Eulachus hispidus Blackburn, Tr. Dublin Soc. III. 1885, p. 141.

The single specimen described by Blackburn as *Eulachus hispidus* has since been shown by Arrow (Ent. Mo. Mag. 1904, p. 35) to belong to the species *Minthea rugicollis*.

Hab. Very widespread. Tropical Asia, &c. Near Honolulu, about 1000 ft., under bark (Blackburn). H. S.

COLOBICUS Latreille.

Colobicus Latreille, Gen. Crust. et Ins. II. 1807, p. 9.

(1) *Colobicus parilis* Pascoe.

Colobicus parilis Pascoe, Journ. of Ent. I. 1860, p. 202.

Colobicus conformis Pascoe, Journ. of Ent. II. 1863, p. 124.

We have received four specimens of this widespread species.

Hab. Tropical Asia, &c. Mts. near Honolulu (Perkins). H. S.

DEROLATHRUS, gen. nov.

Antennae 10-articulatae, clava magna uniarticulata, coxae anteriores approximatae; intermediae fere contiguae; posteriores distantes. Tarsi 4-articulati, articulis basalibus tribus brevibus, primo occulto.

Front of head prolonged, covering the mouth parts; without transverse suture. Antennae (Plate XVI. fig. 10) rather short and stout, inserted under the lateral margins of the head so that the basal joint is from above nearly concealed, it and the second joint thicker than the following; joints three—nine subequal rather stout, each broader than long, ninth slightly broader than the eighth, tenth large, oval, forming an abrupt club, and apparently consisting of three consolidated joints.

Prothorax elongate; the front coxae minute, globular separated by a slender process projecting backwards a little beyond them. The middle coxae (Plate XVI. fig. 11) with small circular acetabula which touch one another. The metasternum is very elongate. The abdomen consists of five ventral plates, the first to the fourth subequal in length, the first a little the longer, the fifth about twice as long as the fourth.

Tarsi (Plate XVI. fig. 9) 4-jointed with the basal three joints short, inserted a little above the tip of the tibia in an excavation so that the basal joint escapes observation.

The affinities of this minute beetle are very obscure. Notwithstanding its very elongate form it has considerable resemblance to *Holoparamecus* of the division Merophysiini. The members of this group have however only three joints to the feet whereas I am fairly certain that there are four in *Derolathrus*. I therefore place the genus in Colydiidae. I have elsewhere expressed the opinion that the Merophysiini should be associated with the Colydiidae, and *Derolathrus* lends additional support to this view. I cannot see the parts of the mouth. D. S.

Derolathrus atomus, sp. nov.

Perangustus, subdepressus, testaceus, obsolete punctatus, estriatus. Long. corp. $\frac{3}{4}$ mm. lat. vix $\frac{1}{4}$ mm.

Plate XVI. fig. 8.

There is very little to describe about this tiny species. The body bears a few erect short setae. The outline and proportions will be appreciated from the figure.

Two specimens; and two others very much broken. There are unfortunately no particulars as to its habitat.

HAB. Oahu (Perkins). D. S.

Fam. DISCOLOMIDAE[1].

Discolomidae Horn, P. Am. Phil. Soc. XVII. 1878, p. 556.

Discolominae Sharp, Biol. Centr.-Am. Col. II. I. p. 495.

Pseudocorylophidae Matthews, Mon. Corylophidae, London, 1899, p. 197.

Coxae omnes transversae, sed ex parte majore occultae; tantum pars apicalis globulosa aperta est.

The erection of a family Discolomidae was proposed by Horn to include the genera *Discoloma* and *Hyberis* (=*Notiophygus*). He states that the posterior coxae are (apparently) completely closed in by the metasternum and first abdominal segment, the metasternal side pieces not reaching them as they do in Colydiidae.

Dr Sharp (op. cit. p. 496) showed that Horn had taken quite an erroneous view of the hind coxae. When the abdomen is dissected off, the superficial appearance is seen to be quite deceptive. The coxae are really large, only the globular ending, where

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[1] By Hugh Scott.

articulation with the trochanter occurs, is externally visible; all the rest is completely covered in by the metasternum and first abdominal segment, which have met above it; the normal articulation of the epimeron with the outer part of the coxa is present, but quite concealed from view.

By dissection of several specimens of the *Fallia* from the Hawaiian Islands, I have found that exactly the same condition exists in that genus.

Moreover, not only are the hind coxae large, consisting each of a transverse pale portion, quite concealed within the ventral chitinous wall of the body, as well as of the small globular apical part externally visible; but the middle and front coxae are of the same form; so that none of the coxae are really globular, but are all transverse, with only the globular ending visible. This I have found to be the case in dissections of *Fallia elongata* and of the Central American *Discoloma vestitum* Pascoe. The exact condition is described in detail below, under the heading of the genus *Fallia*.

Fallia is therefore removed from the Latridiidae, where it was placed by Dr Sharp (op. cit. p. 629), and placed in Discolomidae with *Discoloma*.

Notiophygus and *Holophygus* were also placed by Dr Sharp (op. cit. pp. 495, 497) in Discolominae (as a sub-family of Colydiidae). In the form of their antennae and feet they agree with *Discoloma* and *Fallia*, and it is stated that the affinity of *Holophygus* with *Discoloma* cannot be doubted. Altogether it seems probable that the coxae of these genera will prove similar to those of *Discoloma* and *Fallia*.

It is also extremely probable that *Aphanocephalus* Wollaston belongs to the same family. It was formerly placed in Corylophidae, but Matthews (op. cit. pp. 2, 3 and 197) has shown that it differs from them in almost every respect. He erected for it a family Pseudocorylophidae. The affinity of *Aphanocephalus* to *Fallia* has already been pointed out (Sharp, op. cit. p. 629). The underside of *Aphanocephalus* as figured by Matthews (op. cit. Pl. VII. fig. C 2) has in respect of structural characters a strong resemblance to that of *Fallia*: dissection would probably prove the somewhat distant, apparently globular coxae to be in reality transverse. If this should be so, and *Aphanocephalus* is placed in the same family as *Discoloma*, the name Pseudocorylophidae will have to give place to the older term Discolomidae.

Horn also called attention to the fact that the tarsi of *Discoloma* and *Notiophygus* are 3-jointed. *Holophygus*, *Fallia* and *Aphanocephalus* have also 3-jointed tarsi. All these genera have 1-jointed clubs to the antennae. It seems unwise however to mention these facts as characters in the definition of the family, at any rate at present. The matter requires thorough investigation. *Aphanocephalus*, *Holophygus* and *Notiophygus* should be dissected and examined, also a number of other genera. It is possible that some genera may be found to agree with *Discoloma* in the structure of the coxae, but not in the number of joints in the tarsi and antennae.

FALLIA Sharp.

Fallia Sharp, Biol. Centr.-Am. II. I. p. 629.

In the original diagnosis the coxae are described as "omnes minutae, globosae": but lower down the same page is the statement "it is probable...that these are larger than they appear to be...I anticipate the structure will be found to be similar to that of the Discolominae." As described above, this anticipation has proved to be correct.

All the coxae have a globose, darkly coloured apical portion, visible from the exterior, and a very pale concealed part, elongated in the transverse direction of the body. The concealed part is considerably longer in *Fallia elongata* than in *Discoloma vestitum*. The coxae of the middle pair are more widely separated than those of the front pair, and those of the hind pair are still wider separated. The round front coxal acetabula (the term acetabulum here denotes the round aperture in which is seen the globose, exposed, portion of the coxa) are closed behind by the prosternum, which is abruptly bent upwards: a slight elevation of the surface marks the position of the concealed parts of the coxae. Front of the mesosternum forming a peculiar slot or groove correlated with the back of the prothorax: below this groove, the mesosternum forms an obtuse free median process, correlated with the slightly excavated upturned part of the prosternum: below the groove also, only one large side piece can be seen on either side, reaching to the round coxal acetabulum, and having on its surface a slight elevation indicating the position of the concealed part of the coxa. Hind coxal acetabula round, each formed by a deep excavation of the hind margin of the metasternum, and a shallow one in the front of the first abdominal segment. Hind margin of the metasternum bent up between the coxae, the bent up part invisible without dissection; there is also, on either side near the lateral edge of the metasternum, a bent up piece, in relation with the outer (basal) end of the concealed part of the coxa. Dissection also reveals that the front marginal part of the first abdominal segment is bent up forming a somewhat weakly chitinised wall, which has two concavities exactly fitted to receive the posterior surfaces of the concealed portions of the hind coxae. The floors of all the cavities containing the coxae (Plate XV. fig. 38 *fl.*) are of a membranous consistency, and very hard to detect by ordinary dissection. An attempt is made to show the arrangement of the hind coxae in Plate XV. figs. 38, 39.

(1) *Fallia elongata*, sp. nov.

Elliptica, nitida, subtilissime punctulata, nigra, antennis pedibusque testaceis plus minusve infuscatis, lateribus subtiliter explanatis; epipleuris sat latis; his et pectore et abdomine parcius pubescentibus. *F. minori* peraffinis sed longior, prothorace parum angustior. Long. circa $1\frac{1}{4}$ mm.

A close comparison of specimens shows that this species is very closely allied to the Central American *F. minor* Sharp (Biol. Centr.-Am. II. I. p. 630). The antennae are very similar in the two species, 9-jointed with the basal joint broad, the second also thick, three—eight narrow, three being elongated and four—eight short; the ninth forms the club. But though there is no apparent structural character separating them, the general form and outline of *F. elongata* is distinctly different. *F. elongata* is slightly longer; its prothorax is slightly narrower in proportion, and distinctly narrowed in front; the form is slightly less convex; the elytral punctures are extremely fine and shallow, and evenly distributed, whereas in the specimen of *F. minor* which I have examined under the microscope some slightly larger punctures are scattered near the suture. In the two specimens from Hawaii the elytral punctuation appears even more obsolete than in the rest. Fourteen specimens.

HAB. Oahu, Hawaii.—Oahu: Kaala mts., over 2500 ft.; Waianae mts. 2000—3000 ft., "from Kukui wood," "from Fungus," "beaten from dead Koa branches," &c.—Hawaii: Kaumana, Hilo, 2000 ft. (Perkins).

Fam. TROGOSITIDAE (=TEMNOCHILIDAE).

TENEBROIDES (=TROGOSITA).

Tenebroides Piller and Mitterpacher, Iter per Poseg. 1783, p. 87.
Trogossita Olivier, Ent. II. no. 19, 1790, p. 5.

(1) *Tenebroides mauritanicus*, Linnaeus.

Tenebrio mauritanicus Linnaeus, Syst. Nat. 10th ed., 1758, I. p. 417; Sharp, Tr. Dublin Soc. III. 1885, p. 231.

HAB. Cosmopolitan. Introduced into Hawaiian Archipelago; Oahu (Blackburn), Molokai (Perkins).

Fam. MONOTOMIDAE.

HESPEROBAENUS Leconte.

Hesperobaenus Leconte, Class. Col. N. Amer. I. 1861, p. 86.

(1) *Hesperobaenus capito*, Fairmaire.

Rhizophagus capito Fairmaire, Rev. Zool. 1850, p. 54.
Hesperobaenus capito Sharp, Tr. Dublin Soc. III. 1885, p. 231.

HAB. Kauai, Oahu, Maui, Hawaii.—Kauai and Oahu (Blackburn).—Maui, Haleakala over 5000 ft.—Oahu, Waianae mts., and Mokuleiia—Hawaii, Kona, 2000 ft. (Perkins).

Fam. NITIDULIDAE.

This is a comparatively small family, the Munich Catalogue of Coleoptera enumerating somewhat less than 800 species for all the world. We have recognised 143 species as occurring in our Fauna. This is a very remarkable development for a small group of Islands, and the family is undoubtedly one of the more important of the constituents of the Hawaiian Coleopterous fauna. Of the 143 species 138 are believed to be precinctive, that is found nowhere else. The 138 precinctive species belong, with a single exception to a group that until now has been included in the widely distributed genus *Brachypeplus*[1]. I have however decided to abandon the application of this name to any of the Hawaiian forms, as none of them appear to me to be very closely allied to the Australian forms for which Erichson established the genus *Brachypeplus* in the year 1842. Hence we have distributed these 138 species in 13 genera none of which so far as we know occur elsewhere. Of the five introduced, or non-precinctive species, four belong to the genus *Carpophilus*, many members of which live in food-stuffs, and this is I believe the case with the Carpophili of Hawaii. The fifth non-precinctive form is an Eastern species which has been probably introduced with fruit or other food-stuffs. It should be mentioned that this species has a congener which is at present precinctive but may prove to occur elsewhere. Neither this genus *Haptoncus* nor *Carpophilus* is allied to the Brachypeplus division, and these non-precinctive forms throw no light on the origin of the precinctive forms.

The members of this family frequent the oozing sap of trees or live on decaying vegetable and animal matter, and are frequently found in flowers. So far as is known the Hawaiian species are not exceptional in these respects. The most remarkable point that has been discovered about them is the existence of flightless forms. I am not acquainted with flightless Nitidulidae in other parts of the world, but in Hawaii they appear to be fairly numerous, nine species exhibiting the character. These nine species we have placed in four distinct genera. The wings are present in all these forms but are so much reduced as to be useless for flight. The extent of the reduction appears to be subject to little or no variation within specific limits, but it is different according to the species, and in the genera *Cyrtostolus* (Plate XIII. fig. 24 *a*) and *Apetinus* the wings are much larger than they are in other three flightless genera (Plate XIII. fig. 26, wing of *Apetasimus*). In *Nesapterus* they are extremely minute.

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[1] There is considerable doubt as to the propriety of retaining the name *Brachypeplus* in Coleoptera. Murray in his monograph of Nitidulidae states that the name is preoccupied in Hymenoptera, but without giving particulars. I believe he was mistaken as I have not been able to trace any *Brachypeplus* in Hymenoptera. Whether the *Brachypeplus* of Charpentier, Orthoptera, fasc. 9, may be anterior to the name in use in Coleoptera I need not discuss.

The following table may assist in determining the genera;

Elytra leaving only tip of abdomen exposed..*Haptoncus.*
Elytra leaving more than one segment exposed:—
Form very flat; tarsi small, without lobes..*Cillaeopeplus.*
Form elongate moderately depressed; tarsal lobes very small; sides of thorax densely ciliate..*Notopeplus.*
Form not very elongate or depressed
Sides of thorax depressed, not directed outwards ....*Carpophilus.*
Sides of prothorax directed outwards:—
Size comparatively large, usually 6—9 mm. of length (in *Gonioryctus pusillus*, only $4\frac{2}{3}$). *Goniothorax*, *Gonioryctus*, *Nesapterus*, *Eunitidula*, *Orthostolus*, *Cyrtostolus*, *Apetasimus.*
Size small, 4 mm. or less of length. *Apetinus*, *Eupetinus*, *Nesopeplus*, *Nesopetinus.*

GONIOTHORAX, gen. nov.

Femora sat elongata, anteriora ultra thoracem bene projecta. Prothorax minus—vel haud—transverso.

I separate from *Gonioryctus* a number of species that are aberrant in form, compared with other Nitidulidae of the group, inasmuch as they have more elongate legs and a less abbreviate prothorax, which part is usually of remarkable form. In these representatives the genus looks very distinct, but it is connected to *Gonioryctus* to a considerable extent by *G. fugitivus* and *G. foveatus*. *G. conicicollis* may be taken as the type of the genus. In it the prosternal process is prolonged and prominent behind the coxae, and the angle formed by the direction of its hinder face is nearly rectangular. This is almost enough to constitute another genus as compared with *G. inaequalis*, but I believe that intermediate forms as regards this character will be found in some of the other species of the genus.

(1) *Goniothorax conicicollis*, sp. nov.

Nigricans, antennis pedibusque testaceis, fuscescentibus, abdomine fusco-rufo, thoracis elytrorumque marginibus plus minusve rufescentibus: thorace subquadrato sed anterius angustato, lateribus subrectis, angulis omnibus fere rectis. ♀ Long. corp. $6\frac{7}{8}$ mm. lat. $2\frac{3}{5}$, long. prothoracis $1\frac{1}{2}$, lat. prothor. fere $1\frac{7}{8}$, long. elytr. $2\frac{3}{4}$ mm.

Plate XIII. fig. 18, ♀.

In the female the pygidium is much narrowed towards the tip, where it is not truncate but slightly notched in the middle, there is no tubercle on it, there is a projecting tuft on each side of the notch, on the most prominent part. The last ventral is not elongate, so that the tip of the pygidium (Plate XIII. fig. 18 *b*) can be very distinctly seen on the lower surface; the hind margin is slightly rounded, and there is a tuft of hairs on each side of its middle, just corresponding with the tufts at the apex of the pygidium.

In the male there is no impression on the last ventral, and the hind margin of this plate is feebly bisinuate. Seventeen specimens.

HAB. Molokai, mountains between 4000—4500 ft. (nos. 180, 182, Perkins).

(2) *Goniothorax cuneatus*, sp. nov.

Praecedenti persimilis; prothorace paulo longiore notisque sexualibus differt. ♀ Long. corp. 7—7½ mm. lat. 2¾—2⅞, long. prothor. 1⅞, lat. prothoracis 1⅞, long. elytr. 3 mm.

In the female the pygidium (Plate XIII. fig. 18 *a*) is bent down at the tip, and is there transversely flat, just before this flat part it is convex in the middle so as to appear tuberculate; there is a tuft of hairs at each outer angle behind; the last ventral plate extends just beyond the pygidium and has on the hind margin two distinct tufts of hair each placed on a small tubercle.

The male has the pygidium slightly broader at the apex than it is in *G. conicicollis*, the last ventral plate is feebly depressed on the middle, and its hind margin is bisinuate, the middle of it being just perceptibly more prominent than the outer angle, but not in the least angulate. Ten specimens of this remarkable insect have been found.

HAB. Maui, Haleakala, 4500—5000 ft. (nos. 127, 679, Perkins).

(3) *Goniothorax elongatus*, sp. nov.

♂ *G. cuneati* peraffinis, statura magis elongata, pedibusque crassioribus, distinctus. Long. corp. 7½ mm., lat. 2¾, long. prothoracis 2 mm., lat. proth. 1⅞, long. elytr. 3⅛.

I think this will prove distinct from *G. cuneatus*, though as the male sex characters seem to be almost the same it may be only an extreme form. One specimen.

HAB. Maui, Haleakala, over 4000 ft. (no. 680, Perkins).

(4) *Goniothorax plebeius*, sp. nov.

♂ Nigricans, antennis pedibusque fuscis, abdomine fusco-rufo, thoracis elytrorumque marginibus plus minus rufescentibus; thorace transverso, lateribus leniter rotundatis, dense punctato. Long. corp. 6½ mm., lat. 2¾, long. prothoracis 1¾, lat. proth. 2, long. elytr. fere 3 mm.

Closely allied to *G. conicicollis*, but of shorter form and with a distinctly transverse thorax. We have only two individuals; they are males, and the abdominal characters are very much the same as they are in *G. conicicollis*.

HAB. Molokai (nos. 175, 345, Perkins).

(5) *Goniothorax perkinsi*, sp. nov.

Fusco-rufus, antennis pedibusque rufis, tibiis fuscescentibus; thorace transverso, post medium leviter angustato, dense punctato, fere inimpresso. ♂ Long. corp. 9 mm., lat. 3, long. prothoracis 2 mm., lat. proth. $2\frac{3}{5}$, long. elytr. $3\frac{1}{2}$ mm.

This is the largest and finest of the Hawaiian Nitidulidae, though the thorax is not so remarkable in form as it is in *G. cuneatus* and *G. conicicollis*; its angles are less sharply marked, the front angles more rounded, and behind the middle it becomes perceptibly narrower towards the base. It connects *Goniothorax inaequalis* with the Maui and Molokai forms of the genus. We have received only six specimens, most of which are males; there are however two females, which, although not taken with the males, are I believe the same species. This sex has the last segment constructed very much as in *G. cuneatus*, but the pygidium is rather broader and more truncate at the tip; and the tufts on the hind margin of the last ventral plate are more widely separated. In the male the structure of the terminal segment is almost the same as it is in *G. cuneatus*.

HAB. Hawaii. Kilauea (over 4000 ft., &c.); Hilo, 1800 ft. (nos. 565, 584, 823, &c., Perkins).

(6) *Goniothorax fugitivus*, Blackburn.

Gonioryctus fugitivus Blackburn, Tr. Dublin Soc. III. 1885, p. 131.

The unique exponent of this name apparently comes very near *G. inaequalis* but does not quite agree, as the inner margin of each tibia is quite straight, and there is no appearance of incrassation at the tip; the elytra appear to be more deeply sulcate, and the thorax rather more densely punctate. It is probably nearer to *G. eremitus*, but it is very different in colour, and does not agree in the sculpture, and the male characters seem to be a little different, but as the specimen is not in good preservation and I am not able to make a thorough examination of it, I am unable to speak positively.

HAB. Hawaii, 3500 ft. near Waimea on a flower (Blackburn).

(7) *Goniothorax inaequalis*, sp. nov.

Fusco-rufus, thorace haud elongato, posterius leniter angustato; elytris obsolete sulcatis, minus obsolete punctatis. Long. corp. 7—$7\frac{1}{2}$ mm., lat. $2\frac{3}{4}$, long. prothoracis $1\frac{3}{5}$, lat. proth. 2, long. elytr. $3\frac{1}{3}$.

This species has not the peculiar form of the thorax of the other members of the genus, but in other respects belongs perfectly to the genus, and the front femora extend a good deal beyond the sides of the thorax. The male characters are very remarkable; the pygidium (Plate XIV. fig. 10 *a*) is convex and slightly impressed on either side near the base; the last ventral plate (Plate XIV. fig. 10 *b*) has a very large and deep impression, and in the middle the hind margin is much elongated while the lateral angles have entirely disappeared. In the female the pygidium is convex before the tip; the tip is rather abruptly bent down, and its hind margin is produced so as to form an angle in the middle, each of its hind angles is sharp and bears an extremely minute pencil of hairs; the last ventral receives the tip of the pygidium, it is therefore just perceptibly prolonged in the middle, and has a large pencil of hair on each side. Forty-two specimens.

HAB. Hawaii. Kilauea; Hilo (Haumana 2000 ft., &c.); Olaa (nos. 562, 656, &c., Perkins).

(8) *Goniothorax eremitus*, sp. nov.

Minus convexus, sat elongatus, fusco-rufus; thorace ex parte majore rufo, transverso, posterius angustato, elytris obsoletius sulcatis, minus obsolete punctatis. ♂ Long. corp. $7\frac{1}{4}$ mm., lat. $2\frac{3}{4}$, long. prothoracis $1\frac{3}{5}$, lat. 2, long. elytr. 3 mm.

Closely allied to *G. perkinsi* but less elongate, with a shorter head, the thorax more curved in front, the elytra with some slight depressions and rather differently sculptured. In these points nearer to *G. inaequalis*, but the male has not the remarkable characters of that species, and the tibiae have no thickening at the tip. The pygidium of the male is but little convex; the last ventral has a broad, but not very deep large impression and is not prolonged in the middle behind. One specimen.

HAB. Hawaii, Kilauea, VIII. 1896 (no. 656, Perkins).

(9) *Goniothorax foveatus*, sp. nov.

Nigricans, antennis pedibusque testaceis, thorace abdomineque rufescentibus; minus elongatus, thorace transverso; elytris inaequalibus, vix subaenescentibus, abdomine profunde foveolato. ♂ Long. corp. $6\frac{1}{2}$ mm., lat. $2\frac{1}{2}$, long. prothoracis $1\frac{1}{2}$, lat. prothor. 2, long. elytr. $2\frac{3}{5}$ mm.

This species approaches the genus *Gonioryctus*, but the femora are well prolonged beyond the sides of the thorax, and the claw-joint of the tarsus is remarkably long. The upper surface shows numerous depressions, on head, thorax, elytra and abdomen, the foveae on the latter being remarkably deep. The sides of the thorax are much rounded in front, and slightly sinuate behind, the sulcation and punctuation of the elytra are both indistinct; and the legs are more slender than in the other species of the genus. In the male the pygidium is rather narrow at the tip; the last ventral has a shallow depression along the middle, and the hind-margin is slightly bisinuate. One specimen[1].

The uneven upper surface of the body, caused by numerous depressions, is remarkable.

HAB. Molokai, 4500 ft. 11. IX. 1893 (no. 159, Perkins).

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[1] I have recently seen a second specimen captured by Mr Perkins in 1903. It is of the same sex, and only differs in the hind angles of the thorax being a little less acuminate.

GONIORYCTUS Sharp.

Gonioryctus Sharp, Tr. ent. Soc. London, 1878, p. 131.

This genus seems quite distinct from *Brachypeplus* by the characters previously mentioned by me (l. c.). The aberrant forms of the genus do not approach *Brachypeplus*, and are really differentiations of *Gonioryctus* itself; I have not thought it necessary to establish distinct genera for them. These aberrant forms are *G. oppositus* and *G. extraneus*. If they were separated it would be necessary to place them in different genera. The species of this genus are very closely allied; they are apparently rare, and we have not sufficient material to elucidate them at all thoroughly. Colour seems to be very variable in them. Unfortunately many individuals of our small series are immature. I think this is probably due to the life of the perfect insect being very brief; and this may also account for their apparent rarity.

(1) *Gonioryctus kauaiensis*, sp. nov.

Suboblongus, depressus, ferrugineus, fusco-, plus minusve, variegatus, vix aeneo-micans, dense punctatus: elytris sulcis latis sed obsoletis impressis. Long. $8\frac{1}{2}$—9 mm., lat. $3\frac{1}{2}$, long. prothoracis $2\frac{1}{4}$, lat. proth. 3, long. elytr. 4, lat. elytr. $3\frac{2}{3}$ mm.

One of the most easily recognised species; of broad form, with the punctuation less obsolete than usual. Plate XIV. fig. 9 *a* shows the dorsal aspect of the last segment in the male (the supplementary segment is hidden by the pygidium); hind margin of the male last ventral plate feebly bisinuate; the supplementary segment very broad. In the female the pygydium (Plate XIV. fig. 9 *b*) is truncate at the tip, with a slight median longitudinal elevation, and extends rather farther back; the last ventral is very slightly rounded behind, and has long pubescence on each side. Nineteen specimens. The colour is very variable.

HAB. Kauai. 4000 ft. mts. above Waimea, &c.; Koholuamano (nos. 256, 266, 527, &c., Perkins).

(2) *Gonioryctus mauiensis*, sp. nov.

Latus, depressus, subnitidus, subtilissime pubescens, ferrugineus, capite etc. fuscescentibus; prothorace disco inaequali; elytris sulcis parum profundis, latis munitis, obsolete punctatis. ♀ Long. 8 mm. lat. $3\frac{1}{2}$, long. prothoracis vix 2, lat. prothoracis $2\frac{3}{4}$, long. elytr. $3\frac{1}{2}$.

We have only one specimen of this species. By its comparatively broad form it somewhat resembles *G. kauaiensis*, but has a less ample thorax, and a more obsolete punctuation. The hind margin of the pygidium is rather more rounded. The thorax is a good deal contracted at the sides in front, and the sides are a good deal raised.

HAB. Maui, Haleakala, 5000 ft. v. 1896 (no. 604, Perkins).

(3) *Gonioryctus koae*, sp. nov.

Latus, depressus nitidus, subtilissime pubescens, ferrugineus, limbo pedibusque flavescentibus, capite infuscato; elytris sulcis parum profundis latis, vage fortiter punctatis. Long. 8 mm., lat. $3\frac{1}{4}$ mm.

In the male the hind margin of the pygidium is not rounded, but forms a very obtuse angle in the middle; the last ventral is nearly truncate, feebly bisinuate: the supplementary segment is remarkably broad, rounded, and bears long hairs on the hind margin. In the female the apex of the pygidium is emarginate, and the angles bear long hairs; the hind margin of the last ventral has a pencil of hairs on each side, and is just perceptibly emarginate between them.

With an obvious general resemblance to *G. mauiensis* and *G. kauaiensis* this is quite distinct. It is a recent discovery made by Mr Perkins who found it in the winter of 1903 under the bark of Koa tree.

HAB. Oahu, Waianae mountains, 2000 ft. (Perkins, in 1903).

(4) *Gonioryctus molokaiensis*, sp. nov.

Sat latus, ferrugineus, fusco-variegatus, subaenescens; elytris parum impressis, obsoletius sulcatis, evidenter seriatim punctatis. ♀ Long. corp. $7\frac{1}{2}$ mm., lat. $2\frac{3}{5}$, long. prothoracis $1\frac{2}{5}$, lat. prothor. $2\frac{1}{5}$, long elytr. 3 mm.

I have seen only two examples—both females—of this species. It has a slight resemblance to *Goniothorax fugitivus*, and as the femora are slightly longer than in the other species of *Gonioryctus* it tends to connect the two genera: they are however definitely shorter than in *Goniothorax fugitivus*.

The antennae are less elongate than in *G. latus*; the head is very broad, the thorax is rather strongly transverse, and its punctuation is more definite than in *G. latus*, and its pubescence is very slight. The surface of the elytra is rather uneven, and they have a marked metallic reflection, and a scanty, but not very short, setosity; definite series of punctures can be seen, but they are fine and the intervals are broad. The pygidium is elongate, and forms an angle in the middle; the last ventral is almost truncate, with a tuft of hairs on each side: as the pygidium is markedly longer than the last ventral, and has long cilia on the hind margin, it looks underneath as if there were a supplementary segment in the female sex, which is not the case.

HAB. Molokai. Mountains, 4500 ft. 18. VI. 1893 (no. 181); Pelekunu, IX. 1893 (no. 145, Perkins).

(5) *Gonioryctus acuminatus*, sp. nov.

Latus, subdepressus, testaceus, hic inde (praesertim ad elytrorum latera) infuscatus; elytris vix sulcatis, seriatim sat subtiliter punctatis. ♀ Long. $6\frac{1}{2}$ mm., lat. $2\frac{3}{4}$, long. prothoracis $1\frac{1}{2}$, lat. proth. $2\frac{1}{3}$, long. elytr. fere 3 mm.

This is another species of which only a single specimen—a female—has been found, but I do not doubt its isolation; the pygidium is coarsely punctate and is more acuminate in the middle of its hind margin than in any of the immediate allies; hence this plate projects very much farther back than the ventral plate, the hind margin of which is very slightly rounded; in consequence of this structure the insect when seen from beneath has all the appearance of possessing a supplementary segment, although a female. Added to this the sculpture of the elytra differs from most of the allies, there being no grooves, but distinct series of fine punctures. The antennae are only moderately long, and the club is clear yellow; the legs are also clear yellow, and the undersurface is nowhere infuscate. The thorax is a good deal narrowed in front, densely, somewhat finely punctate; it has some vague impressions on the disc and the sides are much explanate. The side margins of the elytra are also markedly explanate. The pubescence of the thorax and elytra is moderate.

The acuminate pygidium readily distinguishes the insect from the female of *G. arduus*; the largest females of which superficially resemble *G. acuminatus*.

Hab. Oahu, behind Pauoa Valley, 29. III. 1895 (Perkins).

(6) *Gonioryctus suavis*, sp. nov.

Elongatus, ferrugineus, capite, elytris, pectore thoracisque marginibus exceptis infuscatis; prothorace majore, densissime punctato; elytris obsolete sulcatis, subtilissime punctatis, subtiliterque pubescentibus. ♂ Long. corp. 9 mm., lat. 3, long. prothoracis 2, lat. proth. $2\frac{3}{4}$, long. elytr. $3\frac{1}{4}$, lat. elytr. 3 mm.

Plate XIII. fig. 19, ♂.

The measurements are those of a fine male, the female appears to be a little smaller, and specially shorter, one being only $7\frac{1}{2}$ mm. long.

The species is closely allied to *G. latus*, but is perfectly distinct, the sex characters being different. *G. suavis* is also rather larger and more elongate, with finer sculpture. In the male the pygidium is rather long, truncate at the tip with the angles rounded; the last ventral is not bisinuate but has the angles prolonged backwards; the supplementary segment is long and narrow, almost truncate at the tip. In the female the pygidium is rounded behind; the last ventral plate is narrow at the tip, truncate with the angles rounded, and with a good deal of pubescence on each side of the hind margin.

There is a more or less obsolete median longitudinal line on the thorax, and the pubescence lies in different directions on either side of this, the hairs being directed towards the middle line.

Hab. Maui. Haleakala, 3000—4000 ft., under Koa bark, &c. (nos. 361, 772); West Maui, Jao Valley (nos. 349, 689, Perkins).

A specimen with rather shorter thorax, and very dark in colour—the legs being nearly entirely black—is assigned to this species. It is a male and the characters of the sex seem to be the same as in the typical form. Haleakala, 3000—4000 ft., I. V. 1894 (no. 361, Perkins).

(7) *Gonioryctus* sp. ?

A single female, in bad preservation, found on Oahu, differs from *G. suavis* by the pygidium being more rounded at the tip, and the sides of the thorax more narrowly explanate. It may prove to be a distinct species.

HAB. Oahu. Halemano, 2500 ft., under bark, January 1893 (Perkins).

(8) *Gonioryctus haleakalae*, sp. nov.

Sat latus, minus depressus, testaceo-ferrugineus, capite, elytris antennisque extrorsum fuscescentibus; prothorace anterius rotundato, basin versus angustato, dorso convexiusculo, inimpresso, densius punctato; elytris obsoletius sulcatis et punctatis. Long. corp. 7 mm., lat. $2\frac{1}{3}$, long. prothoracis $1\frac{2}{3}$, lat. prothor. 2, long. elytr. $2\frac{1}{2}$ mm.

An elegant insect allied to *G. mauiensis*, but narrower, with a more golden pubescence, and in the male sex readily distinguished by the very finely punctate pygidium, which moreover is less elongate. I know only the male. The thorax is less widely explanate at the sides than it is in most of the other large species; it is very densely punctate. The elytra have only very narrow and obsolete grooves, and an excessively fine punctuation; at the base they are yellow. The abdominal punctuation is very fine; the pygidium is not elongate, and is almost truncate at the tip, the hind angles slightly rounded; the last ventral plate is almost straight behind. Three males. Also one female that I refer with some doubt to the species.

HAB. Maui, Haleakala, 3000 ft. (no. 772, Perkins).

(9) *Gonioryctus elegans*, sp. nov.

Sat latus, minus depressus, flavo-ferrugineus, fusco-variegatus, aurato-pubescens; prothorace antrorsum rotundato, posterius angustato, dense punctato, disco convexiusculo, inimpresso; elytris obsolete punctatis et sulcatis. ♂ Long. corp. $6\frac{1}{4}$ mm., lat. $2\frac{1}{3}$, long. prothoracis $1\frac{3}{5}$, lat. prothor. 2, long. elytr. $2\frac{1}{2}$ mm.

Like *G. haleakalae*, but a little narrower and more convex. Thorax but little explanate at the sides, densely punctured, convex on the middle, without impressions or channel. Elytra with rather broad but very shallow grooves, and very indistinct punctuation. Pygidium of male acuminate in the middle: last ventral feebly bisinuate: tip of supplementary segment slightly emarginate. One specimen.

HAB. Molokai, mountains, VI. 1896 (no. 588, Perkins).

(10) *Gonioryctus calvus*, sp. nov.

Sat latus, testaceus, vage infuscatus, subnitidus, minute pubescens. Long. $7\frac{1}{2}$ mm., lat. $2\frac{1}{2}$, long. prothoracis $1\frac{3}{5}$, lat. prothor. $2\frac{1}{3}$, long. elytr. $2\frac{2}{3}$ mm.

Resembles *G. suavis* and *G. haleakalae* in form, but distinguished from them by the minute pubescence. It is one of longer-antennaed species and has a broad head with large eyes, the club of the antenna black. The thorax has the sides behind a good deal explanate, but in front only very narrowly, it is rather densely and finely punctured, minutely pubescent, the elytra have very shallow, obsolete grooves and obsolete punctuation. The male has the apex of the pygidium elongate, and somewhat acute in the middle, it is extremely finely punctate, the last ventral is very feebly bisinuate. The punctuation of the abdomen is very delicate.

Three males, taken at different times, agree with these characters. A specimen of the other sex, taken on another occasion, is I believe the female of *G. calvus*; it is rather smaller, and has the thorax a little shorter and smaller, and the abdomen not quite so delicately punctate. The hind margin of the pygidium is nearly straight truncate, though sufficiently rounded to make the angles a little indistinct; the last ventral is also nearly straight, with a tuft of cilia on each side. All the specimens appear to be immature; they all have the elytra infuscate, but paler round the scutellum.

I also assign to this species three individuals in which the colour is much darker, the head, the thorax except at the sides, and the antennae and legs to a great extent black. The smallest of these three examples is only 6 mm. long. One of these females is from the island of Molokai.

Hab. Lanai, Molokai.—Lanai; mountains of Koele, &c., 2000—3000 ft.; summit of Lanaihale (nos. 84, 87, 93).—Molokai (1 female; no. 179, Perkins).

(11) *Gonioryctus* sp.

A single very immature specimen differs but little from *G. haleakalae*, but has the elytra more distinctly sulcate. It is certainly not *G. latus*, being too narrow, having the thorax less explanate at the sides, and the pygidium more truncate than the male of *G. latus*. It is probably another species.

A second specimen (Oahu, no. 801, but no locality) is even more immature and apparently has the elytra less distinctly sulcate.

Hab. Oahu, behind Mt. Tantalus, on *Pipturus* (no. 784, Perkins).

(12) *Gonioryctus oahuensis*, sp. nov.

Haud latus, minus depressus, flavo-ferrugineus, capite, thorace elytrisque plus minusve fuscescentibus, fortiter punctatus, elytris subsulcatis, subnitidis. ♀ Long. corp. 5½ mm., lat. 2¼, long. prothoracis 1¼, lat. prothor. 2, long. elytr. 2⅓ mm.

This species has the posterior angles of the thorax less acute than usual. The head is broad, with large eyes, the antennae rather short. The thorax much rounded at the sides in front, rather coarsely punctured, the disc unimpressed. The elytra are a little shining, feebly sulcate, with rather coarse, but indefinite punctuation, the sides slightly explanate in front. The pygidium of the female is moderately coarsely punctured, the hind margin not truncate, but scarcely forming an angle in the middle; the last ventral narrow truncate at the tip, with moderately long cilia on each side, leaving only a small space between them.

One of the two specimens has the hind angles of the thorax rounded, but is I think the same species as the type in which they are nearly rectangular but slightly obtuse. Two specimens.

HAB. Oahu, end of Koolau range near Honolulu, August 1900 (no. 785, Perkins).

(13) *Gonioryctus latus* Sharp.

Gonioryctus latus Sharp, Tr. ent. Soc. London, 1878, p. 129. Blackburn, Tr. Dublin Soc. III. 1885, p. 132.

This species is very variable in colour as recorded by Mr Blackburn. It is distinguished from other species near it by the pygidium of the female being notched and indented at the tip (see Plate XIV. fig. 12 *a*). The dorsal aspect of the male's last abdominal segment is shown in Plate XIV. fig. 12 *b*. The individuals are of large size and very broad form, with transverse thorax, much explanate at the sides, the disc with indications of slight depressions, the punctuation coarse and rough, but not crowded; the sulcation and punctuation of the elytra slight but quite distinct. The sides of the elytra rather strongly explanate. The species appears to be rare as well as variable, and I have altogether seen scarcely a dozen examples.

HAB. Oahu. Kawailoa gulch, "from the gulch itself and very far up" (no. 41), "Kawailoa, from base of leaves of *Freycinetia*" (no. 54), "near head of South branch of Kawailoa gulch" (no. 239); mountains near Honolulu (no. 626, &c., Perkins). Also found on flowers of palm in mountain forests (Blackburn).

Gonioryctus latus, var. *dubius*, var. nov.

Two male specimens differ from the others inasmuch as the last ventral plate has a large depression extending along the middle for the greater part of the length. It is possible they may prove to be distinct, but I see no other character of importance to separate them from small specimens of *G. latus*. They were taken in the same locality and at the same date as other specimens that I assign to *G. latus*, and that are destitute of this character.

HAB. Oahu, from very far up Kawailoa gulch (no. 41, Perkins).

(14) *Gonioryctus similis* Blackburn.

G. similis Blackburn, Tr. Dublin Soc. III. 1885, p. 131.

The only specimen that has been found appears to be allied to *G. latus*, and

G. suavis. It is of more elongate form than *G. latus*, and has the elytra more definitely sulcate and punctate, and the margin of the male pygidium somewhat acuminate in the middle.

HAB. Oahu, in the stems of a lily near the summit of Konahuanui (Blackburn).

(15) *Gonioryctus dissimilis*, sp. nov.

Latus, ferrugineus, extense infuscatus, nitidus, fere epubescens; elytris vix sulcatis sed minus subtiliter seriatim punctatis. Long. corp. ♀ vix 6 mm., lat. $2\frac{1}{2}$, long. prothoracis $1\frac{2}{5}$, lat. prothor. $2\frac{1}{8}$, long. elytr. $2\frac{1}{2}$ mm.

Though we have only one specimen of this species it is so distinct that a mistake can scarcely be made about it. The individual is a female, and has the pygidium notched at the extremity like *G. latus*, to the smaller forms of which *G. dissimilis* is somewhat similar: but the pubescence on the surface is excessively minute, and the series of punctures in the shallow grooves on the elytra are more distinct than usual: and the sides of the thorax are less broadly explanate.

HAB. Oahu, Honolulu, 2000 ft. 27. XI. 1892 (Perkins).

(16) *Gonioryctus lanaiensis*, sp. nov.

Latus, sordide testaceus, antennarum clava fusca; thorace transverso lateribus late explanatis: elytris late sed obsolete sulcatis, obsoleteque punctatis. ♀ Long. 7 mm., lat. $2\frac{7}{8}$, long. prothoracis $1\frac{3}{5}$, lat. prothoracis $2\frac{1}{2}$, long. elytr. 3 mm.

A single specimen—female—from Lanai belongs to a species that may be the representative on Lanai of the Oahuan *G. latus.* It has no notch at the apex of the pygidium, the tip of which is rounded without any trace of angles, while the last ventral is truncate, with much ciliation on each side. The supplementary segment is not emarginate, but is narrow at the tip and slightly depressed there. The sulcation of the elytra is a little deeper, the pubescence a little less developed. The form of the thorax is very much like that of *G. latus*, except that the whole insect is comparatively a little narrower; the punctuation of the thorax too is very like that of *G. latus.* I do not think the specimen can be a variety of *G. calvus*, as the thorax is more broadly explanate at the sides, and none of the details quite agree.

I also consider as being the same species another female considerably smaller, only 5 mm. long, but in other respects not very different.

There is also a very fine male, $7\frac{1}{2}$ mm. long, that I believe to be also a specimen of *G. lanaiensis.* It is darker in colour, and has the thorax longer and more densely punctured; the pygidium has the apex rounded, and the last ventral is almost straight at the hind margin.

HAB. Lanai, 2000—3000 ft. (nos. 80, 84 Perkins).

(17) *Gonioryctus bifarius*, sp. nov.

Ferrugineus, extense infuscatus; elytris sulcatis obsolete punctatis. ♂ Long. corp. 7 mm., lat. $2\frac{1}{2}$, long. prothoracis $1\frac{3}{4}$, lat. prothoracis $2\frac{1}{4}$, long. elytr. $2\frac{3}{4}$ mm.

Extremely similar to the same sex of *G. lanaiensis*, but with the male sex characters different, the pygidium being very acuminate in the middle of the hind margin, and the supplementary segment rather deeply notched: the lateral angles of the last ventral are slightly prominent, except for this the hind margin is nearly truncate. The thorax is densely punctured, and but little uneven, flat on the disc. The grooves on the elytra are well marked but the punctuation is quite obsolete. There is only a very minute pubescence, but the surface is scarcely at all shining. One specimen.

Since the above was written I have been able to examine three specimens recently found by Mr Perkins on Molokai in 1903. Two of them are females and differ from the corresponding sex of *G. lanaiensis*, in having the terminal portion of the pygidium longer and narrower. The male individual quite agrees with the type described above.

HAB. Molokai, Mountains, 9. VI. 1893 (no. 179, Perkins).

(18) *Gonioryctus vicinus*, sp. nov.

Latus, ferrugineus, extense nigricante; thorace fortiter transverso, inaequali, fortiter punctato, elytris punctato-sulcatis. ♀ Long. corp. $6\frac{1}{2}$ mm., lat. $2\frac{5}{8}$, long. prothoracis $1\frac{2}{3}$, lat. proth. $2\frac{1}{3}$, long. elytr. $2\frac{5}{8}$ mm.

We have only one specimen, a female; it has the pygidium broad and truncate at the tip, which moreover is depressed; so that the individual is not a variety of *G. lanaiensis*; this form of the female pygidium, in which the angles are distinct, and the surface between and near them a little bent down, is an approximation to the slightly notched pygidium of *G. latus*. *G. vicinus* differs also from *G. lanaiensis* by the shallower, narrower grooves of the elytra, and the more distinct punctures in them. The greater amount of black colour in this specimen of *G. vicinus*, even the legs being to a large extent black, is I believe merely varietal. The pubescence is much rubbed off, but from the remains I think would be in the fresh state much like that of *G lanaiensis*.

HAB. Lanai, 2000 ft. January, 1894 (Perkins, no. 80).

(19) *Gonioryctus arduus*, sp. nov.

Sat latus, subdepressus, haud nitidus, ferrugineus, hic inde infuscatus, vel nigro-variegatus; prothorace fortiter transverso, ad latera parum impresso, dense subtiliter punctato; elytris obsolete punctato-sulcatis. ♂ Long. corp. $5\frac{1}{2}$ mm., lat. $2\frac{1}{3}$, long. prothoracis $1\frac{2}{5}$, lat. prothor. vix ultra 2, long. elytr. $2\frac{1}{2}$ mm.

In this species the sides of the thorax are broad, but they are little elevated, there being comparatively little impression of the surface; the head is very broad; the punctuation of the thorax is very dense and is rather fine, the pubescence is short and very fine but not scanty; there are two vague depressions just behind the middle of the thorax. The elytra are a little uneven owing to numerous small depressions; their grooves are not deep, and are rather narrow, being scarcely as broad as the interstices. The pygidium is rather short in the male, and rounded at the tip, very finely punctured towards the apex; the last ventral is almost truncate. In the female the pygidium is not rounded at the tip, neither is it quite truncate, the margin being a little sloping on each side, though only very slightly. Hence the sexes are externally more similar than usual, the male being distinguished by the more rounded hind margin of the pygidium, and by the supplementary segment, which, however, usually projects very little.

The individuals from Molokai and Lanai agree fairly well in the above characters; there is a good deal of variation in the colour and size, and to a certain extent in the amplitude and sculpture of the thorax; the variation in this latter respect being in a certain degree sexual. Two females from Maui are more aberrant, the pygidium being a little differently shaped, and more distinctly angulate in the middle of the hind margin. A female from Oahu is still more aberrant, the thorax being a little differently shaped and the pygidium narrower at the tip. More material can alone decide whether these slight distinctions are important.

HAB. Lanai, Molokai, Maui, Oahu.—Lanai; 2000 ft. and over (nos. 84, 86), Koele mts. 2500 ft.—Molokai; 3000—4500 ft. and over; "highest forest" (no. 155); "head of Pelekunu" (no. 165).—Maui; Haleakala, 3000 ft. (no. 772).—Oahu (Kawailoa gulch (nos. 41 and 832, Perkins).

(20) *Gonioryctus anticatus*, sp. nov.

Sat latus, subdepressus, haud nitidus, ferrugineus, superne hic inde infuscatus; prothorace fortiter transverso, postice parum angustato, sat dense punctato; elytris distincte sulcatis, obsoletissime punctatis. ♀ Long. corp. 6 mm., lat. $2\frac{2}{3}$, long. prothoracis $1\frac{1}{2}$, lat. prothoracis $2\frac{1}{4}$, long. elytr. $2\frac{3}{4}$ mm.

Although very similar to *G. arduus* I have no doubt that this is a distinct form, as it has a narrower head, and the female pygidium more prolonged in the middle so that it overlaps the ventral plate, and is quite visible when the under-surface is looked at. The thorax is but little narrowed behind, and it is very difficult to see definitely punctures in the grooves of the elytra. I have seen only females. Three specimens.

HAB. Kauai. Mountains above Waimea, under bark of Koa and other trees, 4000 ft. (nos. 256, 257); also one from high plateau (no. 631, Perkins).

(21) *Gonioryctus blackburni* Sharp.

Gonioryctus blackburni Sharp, Tr. ent. Soc. London, 1878, p. 130.

Very closely allied to *G. arduus*, but I believe really distinct; it is of the size of the smallest specimens of that species, but it is more depressed, more densely and finely punctate, and the head is a little narrower and the eyes slightly smaller: the pronotum is remarkable for being more nearly flat than in any of the other species. The male has the pygidium narrower at the extremity. I have not seen the female.

Postscript. Three years after writing the above a few additional specimens of *G. blackburni* have been shown to me by Mr Perkins; they were captured on the mountain near Honolulu in 1906 and 1907, some of them are labelled "Tantalus iv. '07." They include one female. The characters of this sex are similar to those of *G. arduus* ♀, but the pygidium is rather smaller and less uneven and its angles more indistinct.

Hab. Oahu. On flowers of trees in mountains (Blackburn); and no. 710 (Perkins).

(22) *Gonioryctus pusillus*, sp. nov.

Testaceus, plus minus fuscescens, subtilius pubescens, prothorace disco convexiusculo, haud impresso, elytris haud sulcatis, subtiliter seriatim punctatis. ♂ Long. corp. 4$\frac{2}{3}$ mm., lat. 1$\frac{3}{4}$, long. prothoracis vix ultra 1, lat. prothoracis 1$\frac{1}{2}$; long. elytr. 2 mm.

This is only about half the length of *G. calvus*, and has very little trace of grooves on the elytra, and in the male the pygidium is less acuminate, so that notwithstanding the general resemblance in colour I think the species is distinct from the type form of *G. calvus*; it is however possible that a form I have assigned as a var. to *G. calvus* may be this species, or an intermediate form. The var. ? of *G. calvus* is known only by the female, and *G. pusillus* by a single male. With such inadequate material of difficult and variable species it is not possible to feel convinced.

The female has the pygidium a little rounded behind, almost as in *G. calvus*.

Hab. Lanai, 2000 ft. (no. 80), and above 2000 ft. behind Koele (no. 88, Perkins).

(23) *Gonioryctus extraneus*, sp. nov.

Convexus, rufus, extense nigricans, supra aeneo-micans, pubescentia rara et brevi; elytris obsolete punctatis, subnitidis, nullo modo striatis, vix perspicue seriatim punctatis. Long. corp. 6 mm., lat. 2$\frac{1}{2}$, long. prothoracis 1$\frac{2}{5}$, lat. prothor. 2, long. elytr. 2$\frac{1}{2}$ mm.

We have only one mutilated specimen, but it is one of the most distinct of the species. The colour is probably variable. The throat is transversely convex, quite without impressions on the disc, finely punctate, with a fine pubescence; the sides are but little explanate and the hind angles are distinctly obtuse. The shining elytra are remarkable for their comparative smoothness, but they have distinct pubescence, and hence have not a polished appearance. The apical portion of the abdomen has been broken off. The legs are yellow. The prosternum is less flat than usual ; between the coxae it is very finely margined, and is abruptly bent up behind the coxae.

HAB. Hawaii, Olaa, IX. 1896 (no. 688, Perkins).

(24) *Gonioryctus oppositus*, sp. nov.

Subdepressus, haud latus, testaceus, thorace fusco-vittato, abdomine fusco-maculato, elytris interdum picescentibus ; obsolete punctatus, minute pubescens, elytris aequalibus, nec sulcatis neque impressis. Long. corp. 5½ mm., lat. 1¾, long. prothoracis 1⅛, lat. prothor. 1½, long. elytr. 2¼ mm.

This is not like any other of the Hawaiian Nitidulidae, though it is doubtless part of the precinctive network of forms. It is variable in colour, being sometimes pale yellow, and in other cases the surface is more or less suffused with dark colour. The strongly transverse thorax is a good deal narrowed behind, much rounded at the sides and front angles, the posterior angles obtuse, the explanation of the sides remarkably conspicuous, the surface subobsoletely though not very finely punctate. The elytra have neither seriate punctuation nor grooves, and only traces of depressions; they have a minute diffuse punctuation and pubescence.

The female has the apex of the pygidium (Pl. XIV. figs. 7 *d* and 7 *f*) broad, and almost truncate ; the fimbriae project a little behind as minute free angles ; the last ventral (Pl. XIV. fig. 7 *e*) is quite truncate (except at either apical angle, where it is slightly produced) and the same length as the dorsal plate. The male has the pygidium (Pl. XIV. fig. 7 *c*) distinctly prolonged, and very obtusely acuminate in the middle ; the last ventral (Pl. XIV. fig. 7 *b*) is slightly emarginate, and the supplementary segment (Pl. XIV. fig. 7 *a*) is narrow at the tip though not pointed.

This very distinct species has the prosternum less bent up behind the coxae than the normal *Gonioryncti*, and the eyes are rather smaller, so that it somewhat approaches *G. exilis*.

HAB. Hawaii. Olaa (nos. 635, 688) ; ? Kilauea (685) (Perkins).

NESAPTERUS, gen. nov.

Corpus subdepressum, apterum ; elytra lateribus explanatis ; oculi tarsique mediocres; prosternum post coxas parum recurvatum.

The type of this genus is *Gonioryctus monticola*, a species formerly placed in *Gonioryctus* with reluctance because of its aberrant character in several respects, and now removed because it is found to be quite destitute of organs of flight. A new species discovered by Mr Perkins closely allied to *N. monticola* is added.

The genus has an analogy with *Apetinus*, but is not allied thereto; the larger and more coarsely faceted eyes, the much more largely developed tarsi, and the pronounced facies of *Gonioryctus* show that it is allied thereto and not to the *Eupetinus* group of genera.

(1) *Nesapterus monticola*, Sharp.

Gonioryctus monticola Sharp, Tr. ent. Soc. London, 1878, p. 130.

Plate XIV. fig. 4, ♂.

The peculiar dense and rough sculpture of the elytra make this species very remarkable. It appears to be excessively rare.

The unique example found by Mr Perkins is a female, and does not quite conform to Mr Blackburn's description of the female characters, l.c. p. 131; the tuberculation of the pygidium being extremely obscure, as is also the terminal margin alluded to by him.

HAB. Oahu. Near the summit of the highest peak (Blackburn); end of Koolau range, VI. 1900 (no. 789, Perkins).

(2) *Nesapterus exilis*, sp. nov.

Haud latus, subdepressus, fere opacus, et pubescentiae destitutus; elytris subsulcatis, sulcis fortiter punctatis. ♀ Long. corp. 5½ mm., lat. vix ultra 2 mm., long. prothoracis 1⅗, lat. prothoracis 1⅞, long. elytr. 2 mm.

Closely allied to *G. monticola*, but readily distinguished by the sculpture of the elytra, which are vaguely grooved, and have comparatively large punctures in the grooves; they are also a little longer than the elytra of *monticola*. We have only one specimen. It is a female and has the pygidium obtusely pointed in the middle of the hind margin, and projecting a good deal beyond the last ventral plate.

HAB. Lanai, behind Koele, II. 1894 (no. 87, Perkins).

EUNITIDULA, gen. nov.

Generis *Gonioryncti* affinis.

Prosternum posterius protuberans.

Corpus subpolitum.

This insect is distinguished from *Gonioryctus* by characters that are of importance in other groups of Nitidulidae. The prosternum instead of being curved upwards immediately behind the front coxae, is prolonged backwards so as to form a clumsy prosternal process; and concomitantly with this the base of the pronotum reposes to a larger extent on the elytra, so that the humeral angles of these are in repose considerably in front of the base of the thorax.

The structure of the prosternum is much like that existing in *Goniothorax conicicollis*; in other respects the two insects are so different, that if the forms were placed in *Gonioryctus* the two species in question would have to be widely separated in it.

(1) *Eunitidula sublaevis*, sp. nov.

Haud latus, minus depressus, tenuissime pubescens et parce punctatus, fere politus, colore varians; thorace minus transverso. Long. corp. $5\frac{1}{2}$ mm., lat. 2, long. prothoracis $1\frac{2}{5}$, lat. prothoracis $1\frac{3}{5}$, long. elytrorum 2 mm.

Plate XIII. fig. 20.

The colour is red varied with black, but the extent of the black varies greatly and in one of the two individuals is more extensive than the red. The thorax is less rounded at the sides than it is in *Gonioryctus*. The width is almost the same at the front and the hind angles; the hind angles are rectangular, and the front angles are less rounded than in *Gonioryctus*; the punctuation is distinct but fine, and comparatively scanty so that the surface is shining. The elytra are only obsoletely striate-punctate and there is very little punctuation of the abdomen. The male has the hind margin of the pygidium rounded; the female has it just perceptibly more pointed in the middle. One pair.

HAB. Maui, Haleakala, 5000 ft., III. 1894 (no. 127, Perkins).

ORTHOSTOLUS, gen. nov.

Sulci antennarii convergentes; prosternum processu post coxas haud recurvato, coxae posteriores distantes. Alae perfectae.

This genus—for which *O. robustus* is the type species—differs from *Gonioryctus* in the prosternal process being scarcely at all curved upwards at the apex, by the smaller eyes, with smaller facets, and by the smaller lobes of the tarsi.

It is the most central form of the Hawaiian Nitidulidae, and like all the Hawaiian allied forms it differs markedly from *Brachypeplus* by the much more widely separated hind coxae. *Notopeplus* is connected by means of *Orthostolus* with the other Hawaiian forms.

(1) *Orthostolus robustus*, Sharp.

Brachypeplus robustus Sharp, Tr. ent. Soc. London, 1878, p. 134.

Plate XIII. fig. 21, ♂ under surface.

I described this species from two specimens, 1 ♂, 1 ♀. We have now a very large series of nearly 300 specimens. There is a very considerable difference between the sexes. The male is nearly always much darker in colour than the female, and slightly narrower. It varies in length from $4\frac{1}{2}$ to 7 mm. and in breadth $1\frac{1}{2}$—$2\frac{1}{4}$ mm. The female is of a dusky testaceous colour, with darker spots on the dorsum of the abdomen; these spots are variable in size, and when most extended coalesce so as to make the middle of this part of the abdomen darker than the sides. These specimens therefore approach somewhat to the male in colour. There is also a slight variation in the depressions on the thorax. The elytra have several small indistinct depressions sufficiently evident to make them appear a little uneven. The original diagnosis is as follows: "Sat latus et elongatus, subparallelus, depressus, fere opacus, testaceus sed plus minusve infuscatus, leviter aeneo-micans, antennis fuscis basi testaceo; capite pone oculos mediocres obliquo, crebre fortiter punctato; prothorace fortiter transverso, anterius leviter emarginato, angulis posterioribus fere rectis, fortiter crebre punctato, disco obsolete tri-impresso; elytris opacis, coriaceis, conspicue seriatim punctatis, interstitiis latis, haud punctatis, angulo suturali recto; abdomine dense punctato. Long. 6 mm. lat. 2 mm."

The species is found occasionally in numbers about trees on the mountains near Honolulu, but we have not received it from any other locality, except that certain specimens from the island of Lanai appear not to be constantly different (see var. *lanaiensis* below).

Hab. Oahu. Mountains near Honolulu (Blackburn). Mountains near Honolulu, under bark with larvae, 27. x. 1892 (no. 76, 5 specimens): Mokuleia, v. 1901 (no. 752, 3 specimens): Waialua, ix. 1900 (no. 763, 1 specimen): Pipturus back of Tantalus, vii. and viii. 1900 (nos. 785 and 786, 43 specimens): Honolulu (without date or exact locality): (nos. 789 and 901, 232 specimens) (Perkins).

Orthostolus robustus var. *lanaiensis*, var. nov.

O. robusti affinis paulo major praesertim latior, impressionibus thoracis et elytrorum minus obsoletis. Long. fere 7 mm., lat. 2½ mm.

A small series of 16 specimens from the island of Lanai might be distinguished by the above characters from *O. robustus* of Oahu, were it not that the slight characters are variable, and one of the Lanai females cannot be satisfactorily distinguished from certain examples of the same sex from Honolulu.

We have examined the aedeagus of the male and find a slight distinction in it as compared with Honolulu specimens, but whether this is a constant character we cannot say, and the difference is only slight.

Hab. Lanai. Mountains, 2000—3000 ft., Halepaakai, Koele, etc. (nos. 80, 93, etc., Perkins).

(2) *Orthostolus nepos*, sp. nov.

♂ Latior, depressus, fere opacus, fusco-testaceus, leviter aeneo-micans, antennis pedibusque sordide testaceis; prothorace fortiter transverso, dense punctato, disco tri- vel quadri-impresso, angulis posterioribus argutis, leviter obtusis, fere rectis; elytris inaequalibus, striis latis leviter impressis obsolete punctatis. Long. 7 mm. lat. 2½ mm.

Four male individuals though very near to *O. robustus* are evidently distinct, being comparatively broader, with broader head, longer antennae, more sharply marked hind angles to the thorax and more uneven elytra. A single female is no doubt of this species, though of much paler colour, corresponding in this respect with the female of *O. robustus*.

Hab. Oahu, mountains near Honolulu, 2000—2500 ft. (nos. 43, 76, Perkins).

(3) *Orthostolus germanus*, sp. nov.

♂ Latior, depressus, fere opacus, fuscus, leviter aeneo-micans, marginibus plus minus anguste et vage rufescentibus, antennarum basi pedibusque sordide rufis; prothorace fortiter transverso, dense punctato, disco quadri-impresso, angulis posterioribus argutis, rectis, fere acutis; elytris sat profunde multi-impressis, striis leviter impressis, obsolete punctatis. ♀ Pallidior, ex parte majori testacea. Long. corp. 6 mm.

This is another of the very close allies of *O. robustus*, but though we have only a very small series it is clearly distinct, having the sides of the thorax rather differently shaped so that the hind angles are almost acute: the elytra are differently sculptured, the surface being very uneven and the sculpture of the striae less regular. These characters bring the species nearer to *O. nepos*, but the shape of the hind angles of the thorax is sufficiently distinctive. Ten specimens.

Hab. Molokai. Mountains, 4000—4500 ft.; "above Pelekunu" (no. 173); "highest forest" (no. 155, Perkins).

(4) *Orthostolus prosternalis*, sp. nov.

♀ Latior depressus, opacus, fuscus, prothorace ad latera late rufo, antennis pedibusque rufis; femoribus abdomineque fusco rufis; prothorace fortiter transverso, dense punctato, disco parum profunde quadri-impresso, angulis posterioribus leviter obtusis; elytris leviter inaequalibus, subtiliter striato-punctatis; prosterno processu post coxas latiore, longius ciliato. Long. $6\frac{3}{4}$ mm., lat. $2\frac{5}{8}$ mm.

This is a close ally of *O. robustus*, and, though we have only one example I do not hesitate in giving it a name as the prosternal process (Pl. XIII. fig. 22) exhibits the definite difference mentioned above. It is also broader than *O. robustus*, and darker in colour than the corresponding sex of that species.

Hab. Maui, Haleakala, 3000 ft. (no. 772, Perkins).

(5) *Orthostolus guttatus*, Sharp.

Brachypeplus guttatus Sharp, Tr. ent. Soc. London, 1881, p. 513.

Mr. Perkins' collection contains 12 specimens of this species, from Hawaii. It was originally found in Oahu. These original Oahu specimens (now in the British Museum) are mostly large and very light-coloured. The thorax is reddish all over, or at any rate only darker in the central portion: the ground-colour of the elytra and abdomen is red-brown. Mr Perkins' Hawaii specimens are mostly distinctly smaller, and very dark, the ground-colour of elytra and abdomen being almost black. But some of them vary, approaching the Oahu specimens, and it does not seem possible to separate the two series.

O. guttatus is characterised by the presence of lighter, reddish or testaceous, marks on the elytra. It is longer than *O. sordidus*, and less pubescent; the thorax is relatively longer, much less rounded at the sides, more nearly quadrate, and has the four impressions on the disc less marked.

HAB. Oahu, Hawaii.—Oahu; near Honolulu, 1500 ft. or more, usually at exuding sap of Koa tree (Blackburn).—Hawaii; Kona 3500 ft. VII. 1892 (Perkins). H. S.

(6) *Orthostolus sordidus*, Sharp.

Brachypeplus sordidus Sharp, Tr. ent. Soc. London, 1881, p. 514.

Plate XIII. fig. 23, wing.

This insect was described from a single badly preserved female, from Kilauea, Hawaii. We have now 15 specimens, from Kona, Hawaii, and one ♀ from Mauna Loa, the district where the original specimen was caught.

The species is very variable in colour. Some specimens are red-brown, more or less dark brown in the central parts of the prothorax, abdominal segments, and sometimes of the elytra also; others are dark brownish-black, with the red-brown colour reduced to two small areas at the base of each elytron, and to the posterior margins of the abdominal segments. The posterior margins of the elytra are curved. The male supplementary segment is strongly acuminate. The male pygidium is truncate, with more or less of a notch in its posterior margin; female pygidium rounded and somewhat narrow at the apex.

One dark female differs from the rest in being more shining. A single male also is more shining than the rest, and has the notch in the pygidium deeper.

The species agrees with the allied *O. kauaiensis* and *O. atratus* and with *Cyrtostolus subalatus*, in having the pubescence on the elytra concentrated in places into tufts, the most conspicuous of which is one near the middle of the elytron.

HAB. Hawaii. Kona, 3000—4000 ft., and Mauna Loa 4000 ft., VII. and VIII. 1892 (Nos. 316, 823, Perkins); Kilauea, about 4000 ft. (Blackburn). H. S.

(7) *Orthostolus expers*, Blackburn.

Brachypeplus expers Blackburn, Tr. Dublin Soc. III. 1885, p. 136.

This form is known only by a single specimen, now in the collection of the British Museum. We cannot quite match it with any specimen of *O. sordidus*. It is entirely pale red though it appears to be quite mature. As *O. sordidus* is a variable species I anticipate that *O. expers* will prove to be merely a pale variety of it. It comes however from a different island.

HAB. Maui, Haleakala, under the bark of a tree, 4000 ft. (Blackburn). D. S.

(8) *Orthostolus atratus*, sp. nov.

Nigricans, antennis pedibusque sat nigris, parum rufescentibus, abdominis segmentorum marginibus posterioribus rufescentibus; crebre punctatus, parum dense pubescens; prothorace fortiter transverso, angulis anterioribus parum rotundis, posterioribus argutis, disco quadri-impresso; elytris obsolete impressis, sulcis argutis impunctatis, ad latera evidenter explanatis, marginibus posterioribus curvatis, basi guttis fusco-rufis; Long. corp. $4\frac{1}{4}$—$5\frac{1}{2}$ mm.; lat. corp. $1\frac{3}{4}$—$2\frac{1}{4}$ mm.

This species is darker than *O. sordidus*, and has blacker antennae and legs; also the supplementary segment in the male differs, being rounded, not acuminate as in *O. sordidus*. The ♀ pygidium is somewhat concave in outline at the sides, narrow and rounded at the extremity; the ♂ pygidium tapers more than that of the female, and is slightly truncate.

A single female from Maui differs from the rest in being distinctly shining and in having scarcely any pubescence. The depressions on the prothorax and elytra are more marked, and there are slight depressions on the abdomen.

The male from Hawaii is the smallest of all the specimens but in other respects agrees with them. Seven specimens.

HAB. Maui, Molokai, Hawaii.—Maui, Haleakala 4500—5000 ft., under bark (nos. 366, 116).—Molokai, Waikolu (no. 234).—Hawaii, Kilauea, no. 656. (Perkins.) H. S.

(9) *Orthostolus kauaiensis*, sp. nov.

O. sordidi peraffinis, sed maris pygidio rotundiore minusque impresso, prosterno processu vix minus expanso, prothorace parum majori. Maris segmentum terminale acuminatum. Fuscus; prothoracis abdominisque marginibus, antennarumque basi testaceis, elytrorum basi rufescente, pedibus fusco-testaceis. Long. corp. 5 mm.

A single male from Kauai differs from *O. sordidus* in the characters given above. The supplementary segment appears less sharply acuminate than those of the males of *O. sordidus*.

HAB. Kauai, mts. Waimea, under Koa bark, 4000 ft., v. 1894 (no. 257, Perkins). H. S.

CYRTOSTOLUS, gen. nov.

Sulci antennarii sat convergentes, prosternum processu post coxas parum curvato, coxae posteriores distantes. Alae abbreviatae.

Plate XIII. fig. 24 *a*, wing.

This genus is separated from *Orthostolus* on account of the aborted wings. This character seems to be quite constant. The species has quite the appearance of the species of *Orthostolus* allied to *O. sordidus*, and the only other structural distinction I can observe is that the prosternal process is slightly more curvate.

It should be noted that the wings of this species are not so reduced as they are in the genera *Nesapterus* and *Apetinus*: the size of the wings is nevertheless very little variable; if we suppose that the species is on the way to becoming nearer to the apterous condition it is most difficult to believe that natural selection would aid this in any direct way. In other words the variation in the size of the wings is not of selectional value. D. S.

(1) *Cyrtostolus subalatus*, sp. nov.

Latus, depressus, rufo-fuscus plus minusve infuscatus, marginibus rufescentibus, leviter nitens, crebre punctatus, subtile pubescens; antennis pedibusque rufo-fuscis; prothorace transverso, disco quadri-impresso, angulis anterioribus rotundis, posterioribus plus minusve argutis; elytris obsolete impressis et sulcatis, marginibus posterioribus fortiter curvatis; abdomine obsolete impresso. Long. corp. $4\frac{2}{5}$—$6\frac{1}{5}$ mm., lat. corp. $2\frac{1}{8}$—$2\frac{3}{5}$ mm.

Plate XIII. fig. 24, ♂.

This insect is immediately distinguished from *O. sordidus* by its reduced wings. The prothorax is longer than in *O. sordidus*. It agrees with the latter in having the male supplementary segment strongly acuminate. ♀ pygidium somewhat narrow, rounded in outline at the extremity; ♂ pygidium more truncate, with a very slight notch at the apex. The species is variable in size; some smaller specimens are lighter and more uniformly red-brown. 31 specimens.

We have examined several specimens with regard to the condition of the wings; though the species is a variable one, in this respect it seems to be constant. The wings are not completely aborted, but a little shorter than the elytra and broad at the extremity, so as to be roughly triangular (see Pl. XIII. fig. 24 *a*).

HAB. Maui, Haleakala 4500—5000 ft., III. and IV. 1894, V. 1896 (nos. 350, 600, &c., Perkins). H. S.

Apetasimus, gen. nov.

Pedes breves, tarsorum lobi parvi. Metasternum breve. Alae minutae.

Plate XIII. fig. 26, wing.

In this genus the wings are much more aborted than in *Cyrtostolus*, being quite minute. The front angles of the thorax project forwards on either side of the head much less in this genus than in the allied *Cyrtostolus*. The metasternum is short; and the coxal process of the abdomen is broader, and has its margin less arched, than in *Cyrtostolus*. The distance between the posterior coxae, which is characteristic of this division of Hawaiian Nitidulidae, almost reaches a maximum in this form. On the other hand, the tarsal lobes are small, a character which is very striking when *Apetasimus* is compared with such of its allies as *Goniothorax*. The apex of the prosternal process is much bent upwards; the prothorax is more convex transversely than it is in *Orthostolus*, but there is very little explanation of its sides. The genus is a very peculiar one. D. S.

(1) *Apetasimus involucer*, sp. nov.

Convexus, nitidus, fusco-ferrugineus, antennis pedibusque ferrugineis, crebre punctatus, parce pubescens; prothorace transverso, convexo, ad latera nullo modo explanato, anterius angustiore, disco obsolete quadri-impresso; elytris marginibus posterioribus fere rectis, ad latera parum explanatis, sulcis punctis magnis, interstitiis punctis parvis. Maris pygidium conspicue emarginatum. Long. corp. 4—5 mm.; lat. corp. 2 mm.

Plate XIII. fig. 25, ♀.

This species is very distinct in general appearance from those of the genera *Orthostolus* and *Cyrtostolus*, and is further separated from them by its minute wings (Pl. XIII. fig. 26).

In one specimen the four depressions on the prothorax are fairly distinct; in the others, hardly present. The notch in the ♂ pygidium is broad and rather deep, the pygidium forming a narrow and somewhat sharp piece on either side of it. ♂ supplementary segment terminally almost truncate. The ♀ pygidium is somewhat long, and narrow at the apex, rather truncate with rounded angles, and an extremely slight depression on the posterior margin. 10 specimens.

Hab. Kauai, Makaweli 2500 ft., II. 1897 (nos. 668, 703, Perkins). H. S.

Apetinus, gen. nov.

Sulci antennarii convergentes. Prosterni processus ad apicem nullo modo recurvatus, brevissime ciliatus. Coxae posteriores distantes. Metasternum brevius eo *Eupetini*. Alae abbreviatae.

This genus has the same relation to *Cyrtostolus* that *Eupetinus* has to *Orthostolus*. It is distinguished from *Eupetinus* by the condition of the wings, the metasternum at the same time being shorter. On comparing several specimens of *A. explanatus* with specimens of several species of *Eupetinus*, we find the posterior coxae slightly further apart.

The wings are of the same form as those of *Cyrtostolus*. The apical portion is absent, the shape somewhat triangular, the outer margin slightly concave.

The genus can be divided into two sections corresponding to those of *Eupetinus*. The first consists of the closely-allied *A. macrothorax* and *A. medius*. These have narrow explanate margins to the elytra, which are as long in proportion to the whole length as those of *Eupetinus*. Their wings are as long as, or slightly longer than, half the length of the elytra.

The second section consists of *A. explanatus*, of which we have a large series, and the closely-allied *A. brevis* and *A. pumilio*. These have broad elytral margins and shortened elytra. In eight specimens of *A. explanatus* which we have examined, the wings are decidedly less than half as long as the elytra. H. S.

(1) *Apetinus macrothorax*, sp. nov.

Sat latus, fusco-testaceus; marginibus, pedibus, antennarumque basi ferrugineis; pedibus longis; prothorace magno, elongato et lato, lateribus rotundatis, angulis posterioribus argutis, disco quadri-impresso, crebre punctato; elytris impressis, ad latera explanatis, sulcis argutis punctatis, interstitiis transverse striatis; abdomine sat crebre punctato. Long. corp. $4\frac{1}{2}$ mm., lat. corp. 2 mm., long. prothoracis circa $1\frac{1}{5}$ mm.

Plate XIII. fig. 27.

This remarkable species is characterised by the size of the prothorax (which is considerably elongated, not strongly transverse, and is conspicuously broad, its greatest breadth forming almost the greatest breadth of the body), and by the length of the legs, the femora projecting distinctly beyond the edges of the body. The male supplementary segment is rounded, slightly tapering towards the apex; male pygidium truncate with rounded angles; female pygidium broader, subtruncate.

The wings are reduced to the same form as those of *A. explanatus*, with concave outer margins; but they are somewhat more than half as long as the elytra. Three specimens.

HAB. Molokai, highest forest, 21. IX. 1893 (no. 155, Perkins). H. S.

(2) *Apetinus medius*, sp. nov.

A. macrothoracis peraffinis, sed minor, prothorace breviore, obsoletius punctato. Prothorax latus fortiterque transversus. Pedes longi. Long. corp. $4\frac{1}{3}$ mm.; lat. corp. $1\frac{2}{3}$ mm.; long. prothoracis 1 mm.

A single male from Molokai differs from *A. macrothorax* in the characters given above. The punctures on the prothorax are obsolete, with striae radiating from them in a stellate manner, as in *Eupetinus marginatus*. The supplementary segment tapers, but is rounded at the apex; pygidium truncate with rounded angles. The wings are about half as long as the elytra.

HAB. Molokai, over 4000 ft., 15. VI. 1893 (Perkins). H. S.

(3) *Apetinus explanatus*, Sharp.

Brachypeplus explanatus Sharp, Tr. ent. Soc. London, 1879, p. 84.

This species was described from a single very good male specimen from the mountains near Honolulu. We have now a series of 128 specimens, almost all of which are darker than the original specimen, which was scarcely mature; it was described as "ferrugineo-testaceus" in the original diagnosis. "Fusco-ferrugineus, prothorace interdum minus infuscato" is applicable to our series. The head and eyes are small. The alternate interstices of the elytra form conspicuous ridges, which are, however, frequently interrupted by vague inequalities of the surface. The pubescence on the abdomen is less coarse and dense than in some allied species.

The abdomen is acuminate. The male supplementary segment is obtusely acuminate, with a number of long hairs at the apex. The male pygidium is somewhat long, narrow and convex, having a truncated apex with rounded angles; female pygidium shorter and broader, rounded at the apex.

We have examined the wings of several specimens, and find them less than half as long as the elytra, somewhat triangular in shape; rather like those of *Cyrtostolus subalatus*, but more reduced.

HAB. Oahu; Honolulu mountains, end of Koolau range, &c.; found in numbers only in one spot, on the ground, in dead leaves; XI. and XII. 1900, VI. 1901 (Perkins). H. S.

(4) *Apetinus brevis*, Sharp.

Brachypeplus brevis Sharp, Tr. ent. Soc. London, 1878, p. 137.

This is allied to *A. explanatus*, though very much smaller, and with much feebler legs. It has not been found by Mr Perkins.

HAB. Oahu, "by sifting dead leaves at the foot of a precipitous cliff" (Blackburn).

(5) *Apetinus pumilio*, sp. nov.

Brevis, latiusculus, convexus, sordide testaceus, sat nitidus, parce pubescens, oculis parvis; prothorace lateribus rotundatis, crebre punctato, disco obsolete quadri-impresso; elytris brevibus et latis, seriatim punctatis, interstitio quinto pone basin magis elevato; abdomine fortiter, parce punctato. Long. vix 3, lat. vix $1\frac{1}{2}$ mm.

Closely allied to *A. brevis*, but readily distinguished by the differences in sculpture. We have only one specimen, a female.

Hab. Oahu, near Honolulu, August 1900 (no. 785, Perkins). D. S.

Eupetinus, gen. nov.

Corpus sat latum. Coxae anteriores parum distantes; prosternum inter eas nullo modo protuberans, processu ad apicem tantum minutissime ciliato. Coxae posteriores distantes. Tarsorum lobis haud magnis. Alae perfectae.

The species assigned to this genus consist of insects of smaller size than *Orthostolus*, with the prosternal process small and quite destitute of any long hairs at the tip. The prothorax has always three or four depressions on the disc, but they are variable in distinctness even in the same species. The elytra too have in most cases several depressions, but in numerous species these are almost obliterated. The male pygidium is not notched or emarginate apically,

The genus is a most difficult one to deal with owing to the great variability of the species and to their being extremely closely allied. Colour is especially variable, and cannot be relied on. A curious variation occurs in several species, inasmuch as the black colour of the elytra and abdomen may be concentrated chiefly on the anterior parts, leaving the hinder portion of the two parts more or less clear yellow. In this variation the elytra are often black in front and yellow behind; we have consequently spoken of this form as var. *dimidiatus* (Pl. XIV. fig. 20). In some of the extreme forms of this variation the abdomen has become entirely yellow.

It is impossible to tabulate the species of this genus in any way that would be practically useful, and the only sections we can establish depend on the width of the expanded lateral margin of the elytra. It is hard to draw the line exactly between these two sections, but a number of species have these margins conspicuously broad; and we have placed these species, nos. 18—24, at the end of the genus. It is possible that observation of the habits of the species may throw some light on the subject of these obscure forms, which we feel we are leaving in a very unsatisfactory state. D. S.

(1) *Eupetinus insignis*, sp. nov.

Nigricans, pedibus antennarumque basi prothoracisque marginibus fusco-ferrugineis, elytris abdomineque flavo-ferrugineo-variegatis, nitidus; prothorace fortiter transverso, antrorsum angustato, angulis posterioribus fere rectis, disco quadri-impresso, sat obsolete punctato; elytris parum inaequalibus, posterius flavo-ferrugineis, sulcis punctatis, interstitiis minute `punctatis; abdomine parcius punctato. Maris segmentum terminale subtruncatum, angulis late rotundatis. Long. corp. 4—5 mm.; lat. corp. $1\frac{1}{2}$—2 mm.

The pygidium in both sexes is covered with a minute but distinct reticulation: the punctures are few and the hairs that rise from them short. The last ventral segment also is scantily punctuated. The male supplementary segment is nearly truncate, only slightly rounded in outline. The male pygidium is rather long and narrowed, subtruncate, slightly rounded; female pygidium somewhat broader.

The contrast between the dark colour, and the lighter yellowish area on the posterior part of the elytra, and the small light mark at the base of either elytron near the scutellum, which forms the var. *dimidiatus* of allied species, is here very marked. The pygidium also is much lighter in its basal and lateral portions. A single male from Waianae differs in being smaller than the other specimens, and in having its elytra and pygidium almost uniformly dark, the light areas being much reduced. Four specimens.

HAB. Oahu. Waianae mts., over 3000 ft., IV. 1892 (no. 3); Mokuleeia, IV. 1901 (no. 752, Perkins). H. S.

(2) *Eupetinus obscurus*, sp. nov.

Nigricans, prothorace ad angulos testaceo, pedibus antennarumque basi fusco-ferrugineis, crebre punctatus, leviter nitidus. *E. insignis* affinis, sed pygidio crebrius punctato, et maris segmento terminale haud subtruncato, parum acuminato. Long. corp. circa 4 mm.; lat. corp. circa $1\frac{1}{2}$ mm.

This species differs from *E. insignis* in having the pygidium and last ventral segment coarsely punctuated, and the male supplementary segment somewhat acuminate, rather rounded. It is distinguished from *E. subaper* by its generally larger size, by the transverse striation on the interstices of the elytra being much less marked, and the less sharply acuminate male supplementary segment. The male pygidium is truncate with rounded angles, scarcely emarginate in the middle; female pygidium broader, and rounded.

Two male specimens show an approach to the *dimidiatus* form in a slight lightening of colour on the posterior part of the elytra. One female is lighter than all the other specimens, being ferrugineous; it is perhaps scarcely mature. We have seven specimens.

HAB. Oahu, Wahiawa, IV. 1901 (nos. 750, and 660, Perkins). H. S.

(3) *Eupetinus derasus*, sp. nov.

Sat latus et depressus, subopacus, fusco-niger, prothorace pygidioque fusco-testaceis, antennarum basi pedibus sordide testaceis, elytrorum parte apicali (interdum?) late testacea; prothorace dense obsolete punctato, lateribus rotundatis, angulis posterioribus obtusis; elytris parum inaequalibus, punctato-striatis punctis parum discretis; abdomine parce subtiliterque punctato. Long. $4\frac{1}{2}$, lat. $1\frac{3}{4}$ mm.

This is one of the larger forms of the genus, and is distinguished by the very obsolete sculpture of the thorax; this too has strongly rounded sides with very obtuse hind angles. The colour of the elytra is that of the *dimidiatus* form. We have only one specimen—a male.

HAB. Kauai, Makaweli, 2500 ft., II. 1897 (no. 703, Perkins).

(4) *Eupetinus subaper*, sp. nov.

Fusco-ferrugineus plus minusve infuscatus, antennis fuscis, pedibus testaceis, leviter nitidus, vix aeneo-micans, crebre punctatus, vix dense pubescens. *E. apro* affinis, sed angustior, prothorace ad latera minus rotundato angulisque posterioribus minus argutis; elytris ad latera minus explanatis. His inaequalibus, sulcis punctatis, interstitiis parum latis transverseque striatis; abdomine acuminato, pygidio crebre punctato. Long. corp. $3-4\frac{1}{4}$ mm.; lat. corp. $1\frac{1}{4}-1\frac{3}{4}$ mm.

This species appears to be very closely allied to both of the two very distinct forms, *E. aper* and *E. omalioides*. It differs from the former in the characters mentioned in the diagnosis, and from the latter in those given under the heading of that species; it has a broader margin to the elytra and is therefore placed at the head of the second section.

The male supplementary segment is somewhat acuminate, slightly rounded at the sides, fringed with long hairs. The male pygidium is rather narrow at the apex, truncate with rounded angles, slightly emarginate; female pygidium broader and more rounded. The pygidium in both sexes is much more coarsely punctuated and more pubescent than in *E. omalioides*. The female last ventral segment is fringed with long hairs.

In both sexes the specimens in colour vary considerably from lighter to darker, and some are of the var. *dimidiatus* form.

A single dark male differs from the rest in having its supplementary segment not acuminate but rounded; in this particular it resembles *E. omalioides*, but in others, especially in the coarse punctuation of the pygidium, it agrees with *E. subaper*. Ninety-one specimens.

HAB. Oahu. Apparently found frequently, and sometimes in the same situations as *E. omalioides*; Konahuanui Ridge, XII. 1900 (no. 783): many from mountains near Honolulu; "on strong-smelling introduced creeper"; "on Pipturus trees"; "on Pipturus covered with stinking creeper, probably nearly all from the creeper"; "from a deep dark ravine, on dead plants"; &c. (Perkins). H. S.

(5) *Eupetinus impressus*, Sharp.

Brachypeplus impressus Sharp, Tr. ent. Soc. London, 1878, p. 135.

Brachypeplus inaequalis Sharp, T. c. p. 136.

The original diagnosis is "Sat latus et elongatus, testaceus, irregulariter plus minusve infuscatus, subaeneo-micans, nitidus parce pubescens; prothorace transverso, antrorsum vix magis quam posterius angustato, disco profunde tri- vel quadri-impresso; elytris inaequalibus, striatis; abdomine sat crebre distincte punctato. Long. 3 mm.; lat. $1\frac{2}{5}$ mm."

This and the forms allied to it are amongst the most difficult of the Hawaiian Coleoptera. I expressed my doubt when describing *B. inaequalis* as to its proving distinct from *B. impressus*, and I am now convinced that it is only a pale form—I had only one specimen—in other respects finely developed—it has the two sides of the thorax of different shapes. *E. impressus* is not only very variable, but is also very closely approached by several other species; it is indeed so closely connected with various other forms that it might reasonably be considered as giving origin to them. It is distinguished from *E. striatus* by the less distinct sculpture, which is less dense on the thorax, so that the surface is more shining. The surface of the elytra is very uneven, and the punctuation of the pygidium very slight; a specimen not exhibiting these characters cannot be named *E. impressus*.

Var. *dimidiatus*, var. nov. A series of about 20 specimens have the basal portion of the elytra dark—nearly or quite black—and the apical portion pale testaceous, the line of division between the two colours being not straight but irregular (Plate XIV. fig. 20). One specimen of this colour variety from Waianae is so aberrant that it may prove to be another species.

The species varies so much in colour that it is not possible to treat this variety as a species; especially as a similar variation occurs in several of the other species, though in some cases not in so striking a manner.

We have altogether about 228 specimens of *E. impressus*.

Hab. Oahu, Maui, Molokai, Kauai.—Oahu; the great majority of specimens are from this island; mts. near Honolulu, Koolau range, back of Tantalus (on *Pipturus*, &c.), Wahiawa; Waianae mts. 2000—3000 ft., a single specimen (no. 670).—Maui; Jao Valley, West Maui, three specimens (no. 349).—Molokai, 4500 ft., one specimen (no. 141).—Kauai: Makaweli, 2500 ft.; Halemanu, 4000 ft.; Koholuamano; mts. above Waimea, 4000 ft., from various trees and flowers of "haha," &c. (nos. 256, 631, 703, &c., Perkins). D. S.

(6) *Eupetinus hawaiiensis*, sp. nov.

Minus latus et depressus, fuscus, antennarum basi pedibusque fusco-testaceis, elytris inaequalibus, guttis testaceis ornatis, margine laterali auguste explanato; prothorace fortiter transverso, parum profunde rugoso-punctato; angulis posterioribus leviter obtusis; pygidio subtiliter punctato. Long. 3½—4 mm.; lat. 1½ mm.

Closely allied to *E. impressus*, but larger and darker in colour, with a narrower outstanding margin to the elytra; the elytra usually darker in colour, but with the yellow spots formed by the elevated parts more definite and distinct: and the thorax a little longer.

Almost equally close to *E. striatus*, but with the sculpture of the thorax less dense and rugose, and that of the pygidium finer. The species varies a good deal, but the variation is not similar to that of *E. impressus* or of *E. striatus*. The specimens from

Kilauea and the four from Hilo come nearer to the Oahuan *E. impressus*, than do the specimens from Kona, these being distinctly nearer to *E. striatus*. One specimen from Kona is however of the Kilauea form; it is no. 201 and was found at 3000 ft. in October, 1892. None of the other form were found with it. Twenty-eight specimens of *E. hawaiiensis* have been procured. I have treated the Hilo form as the type of the species.

HAB. Hawaii. Above Hilo, 1800 ft. (no. 558); Olaa; Kilauea; Kona, 2500—4000 ft., from decaying Lehua tree (no. 283); beaten from various trees (no. 217), &c. (Perkins). D. S.

(7) *Eupetinus priscus*, sp. nov.

Nigricans, nitidus, limbo pedibusque sordide testaceis (antennae desunt); prothorace fortiter punctato, angulis posterioribus argutis vix obtusis; elytris inaequalibus, sat profunde striatis, striis subtiliter punctatis; abdomine sat crebre, subobsolete punctato. Long. 4, lat. $1\frac{2}{3}$ mm.

This insect cannot be referred to *E. impressus*, as it is larger, and has a longer thorax. I have therefore given it a name, although we have received only a single mutilated individual, a male.

HAB. Kauai, high plateau, August 1896 (Perkins). D. S.

(8) *Eupetinus striatus*, Sharp.

Brachypeplus striatus Sharp, Tr. ent. Soc. London, 1881, p. 515.

This is usually a dark-coloured and obscure species; it has coarsely sculptured thorax and deeply striate elytra with narrow interstices, and narrow lateral margins, a short thorax, a good deal narrowed behind, and with slightly obtuse hind angles.

In Hawaii it varies a good deal in size, but not very much in other respects. From Oahu we have a large series of about 119 specimens, very variable in colour and looking at first sight quite different from the Hawaiian series, but I am unable to find any means of distinction. Some of these specimens are almost entirely yellow, others have black marks to a quite variable extent. And in some specimens the colour is similar to that of the Hawaiian individuals.

HAB. Hawaii, Oahu, Maui.—Hawaii: Olaa, Kilauea, Hilo 1800—2000 ft.—Oahu: Konahuanui Ridge (no. 810), Wahiawa, Mokuleeia, mts. near Honolulu, Waianae mts. (no. 547).—Maui, Haleakala (nos. 772, 826, Perkins). D. S.

(9) *Eupetinus bicolor*, Blackburn.

Brachypeplus bicolor Blackburn, Tr. Dublin Soc. III., 1885, p. 137.

"Sat latus, nitidus, piceo-niger; pedibus, thoracis abdominisque lateribus et gutta circa elytrorum suturam magna apicali, ferrugineis; prothorace transverso, lateribus sat rotundatis parum explanatis, disco tri- vel quadri-impresso; elytris inaequalibus obscure striatis, striis sat fortiter punctatis; abdomine fortiter sat crebre punctato. Long. $3\frac{1}{3}$ mm."

"A single specimen was taken under the bark of a tree on Mauna Loa, Hawaii, at an elevation of nearly 5000 ft."

We have not received this species. It appears to be nearest to *E. striatus*. It is shining, remarkably dark in colour, with a red mark on the elytra on the suture just before the tip. The segments of the abdomen are shining, and the punctures, though distinct, are remarkably definite.

HAB. Hawaii, Mauna Loa, 5000 ft. (Blackburn). D. S.

(10) *Eupetinus sulcatus*, sp. nov.

Nigricans, marginibus ferrugineis, elytris plus minusve ferrugineis, antennarum basi pedibusque fusco-ferrugineis, leviter nitidus, subtiliter sed parum conspicue pubescens; prothorace transverso, antrorsum parum angustato, posterius fortiter angustato, angulisque posterioribus fortiter argutis, ad latera explanato, disco obsolete quadri-impresso, dense punctato; elytris obsolete impressis, ad latera explanatis, marginibus posterioribus curvatis, sulcis argutis profundisque punctis magnis, interstitiis plus minusve transverse striatis, fere impunctatis: abdomine crebre punctato. Long. corp. $3\frac{7}{8}$ mm.; lat. corp. $1\frac{2}{3}$ mm.

This species is characterised by the remarkable shape of the prothorax, the sides of which curve strongly inwards posteriorly, and then curve outwards again considerably to the sharp posterior angles. The male supplementary segment tapers, but is somewhat rounded apically. The pygidium in both sexes is coarsely punctuated; that of the male is truncate with rounded angles, slightly emarginate in the middle; that of the female broader and somewhat rounded.

The pubescence on the elytra is in places aggregated into little tufts like those of certain species of *Orthostolus* (*O. sordidus*, *O. guttatus*). There is a lightening in colour not only on the margins of the elytra, but also in a small patch on either side of the scutellum, and to some extent on the inner posterior portions of the elytra, as in allied species. Eleven specimens.

HAB. Molokai. Head of Pelekunu, VIII. 1893 (no. 165); mountains 3000—4000 ft., V. and VI. 1893 (Perkins). H. S.

(11) *Eupetinus curtus*, sp. nov.

Nigricans, marginibus pedibusque fusco-ferrugineis, elytris guttis fusco-ferrugineis, leviter nitidus, subtiliter sed parum conspicue pubescens. *E. sulcati* affinis; sed prothorace antrorsum minus angustato, angulis anterioribus argutioribus antrorsumque magis extensis, posterius haud fortiter angustato, angulis posterioribus fere rectis; et elytrorum sulcis minus eis *E. sulcati* profundis, interstitiis latis, laevigatis, fere impunctatis. Long. corp. $3\frac{1}{3}$—$3\frac{3}{4}$ mm.; lat. corp. $1\frac{1}{3}$—$1\frac{2}{3}$ mm.

This species is distinguished from *E. sulcatus* by the shape of the prothorax, and by the less deep furrows of the elytra. The interstices of the latter also are flattened and somewhat broad, not so ridge-like as those of *E. sulcatus*. Otherwise the two species are much alike; in both the light colour of the margins forms rather broad and conspicuous areas at the angles of the prothorax. The pubescence is aggregated into tufts on the elytra.

The pygidium is coarsely punctuated in both sexes; that of the male is truncate or subtruncate with rounded angles, very slightly depressed at the middle of the posterior margin; that of the female somewhat broader, either rounded, or truncate with rounded angles and a very slight depression in the posterior margin. The male supplementary segment tapers more or less, but is rounded apically, fringed with long hairs.

Var. *dimidiatus*. In the Maui specimens this colour variety, described under *E. impressus*, is present in a strongly-marked form in both sexes. 132 specimens.

HAB. Maui, Molokai.—Maui; all from Haleakala, 3000—5000 ft.—Molokai; mts. 3000—4000 ft., "highest forest" (no. 158), &c. (Perkins). H. S.

(12) *Eupetinus obsoletus*, Sharp.

Brachypeplus obsoletus Sharp, Tr. ent. Soc. London, 1881, p. 515.

"Parum latus, depressus, opacus, brevissime pubescens vel setulosus, fusco-rufus; prothorace dense subrugulose punctato, disco parum distincte quadri-impresso, angulis posterioribus rectis; elytris subaequalibus, regulariter seriatim et fortiter punctatis, interstitiis planis; abdomine opaco, dense subobsolete punctato. Long. $4\frac{1}{2}$, lat. $1\frac{2}{3}$ mm."

This was originally diagnosed by me from a single specimen of the female sex. The diagnosis should be amended as regards the sculpture of the elytra, the striation of which is remarkably deep, so that the punctures in the striae are indistinct; the interstices are narrow. This correction is of importance because of the discovery of the following species, *E. sculptus*, which is closely allied to *E. obsoletus* but has the punctures in the striae distinct.

The male has the sculpture of the pygidium close and rough, in the form of longitudinal subeffaced granules.

E. obsoletus seems to be not uncommon in Hawaii. Mr Blackburn found it in the stems of ferns. We have now about 128 specimens.

HAB. Hawaii. The majority of specimens from Kilauea (no. 656); Olaa; Kaumana and Amaula; Hilo, 2000 ft.; some from mountains 4000 ft. (Perkins). D. S.

(13) *Eupetinus sculptus*, sp. nov.

Sat latus, subnitidus, ferrugineus, vel testaceo-ferrugineus, antennis extrorsum abdomineque medio plus minusve infuscatis; prothorace fortiter transverso, fortiter punctato angulis posterioribus leviter obtusis; elytris striatis, striis fortiter punctatis, margine laterali angusto, abdomine dense fortiter punctato. Long. fere 4, lat. $1\frac{1}{2}$—$1\frac{3}{5}$ mm.

This is closely allied to *E. obsoletus*, but is less dull, with the punctures in the striae larger, and more easily seen, owing to the striae being less deep, and it has the punctuation of the pygidium less rough and less granular. It is usually easy to distinguish, but some of the specimens come very close to *E. obsoletus*. We have received about 39 specimens of *E. sculptus*.

Hab. Hawaii, Oahu.—Hawaii; Hilo (Kaumana, &c.), 1800—2000 ft., Olaa.—Oahu; a single specimen from Waianae coast (no. 672, Perkins). D. S.

Eupetinus sculptus var. *parcus*, var. nov.

Certain specimens depart considerably from the individuals treated as the type of *E. sculptus*, the interstices of the elytra being wider in proportion to the size of the punctures, the thorax and antennae are rather shorter, and the punctuation of the abdomen more scanty. The coloration is more variegate, and in some cases assumes the "dimidiatus" form in a marked manner. This variety of *sculptus* approaches *E. spretus*. I have an immature example found in the Waimea Mountains of Kauai, that I cannot distinguish from the Hawaiian specimens.

Hab. Hawaii: Kona, 3000 ft., x. 1892; Olaa, ix. 1896 (Perkins).

We have received six specimens of this variety, in addition to two found by Mr Blackburn and now in the British Museum. One specimen from Olaa and one from Kona are of the *dimidiatus* form.

Hab. Hawaii, Oahu, Kauai.—Hawaii: Kona, 3000 ft., x. 1892; Olaa, ix. 1896 (Perkins); Mauna Kea (Blackburn).—Oahu; one specimen from Mokuleeia (no. 752, Perkins).—Kauai, mountains of Waimea (Blackburn). D. S.

(14) *Eupetinus spretus*, Blackburn.

Brachypeplus spretus Blackburn, Tr. Dublin Soc. iii., 1885, p. 136.

Latiusculus, niger, flavo-variegatus, abdomine interdum omnino testaceo, antennis fusco-testaceis, pedibus flavis; prothorace fortiter transverso, dense punctato, haud rugoso; elytris leviter inaequalibus, regulariter punctato-striatis; abdomine subtiliter punctato. Long. $3\frac{3}{4}$—4, lat. $1\frac{2}{5}$mm.

This is one of the species of comparatively broad form but with only moderately broad outer margin to the elytra, and rather stout short legs and strongly transverse eighth joint to the antennae. The colour is more vivid than usual, the yellow on the abdomen usually predominates, and in the female the whole abdomen is sometimes pale yellow. The colour however varies a good deal; and one or two individuals show a great deficiency of the black pigment. We have only a small series of twenty-two specimens.

The species was described from Maui by Mr Blackburn. I believe our series from Hawaii is the same as Mr Blackburn's type, but as this is in bad preservation it is not quite certain.

HAB. Maui, Hawaii.—Maui; Haleakala, 4000 ft. (Blackburn).—Hawaii; Olaa, Kilauea, above Hilo, 1800 ft. (Perkins). D. S.

(15) *Eupetinus omalioides*, Sharp.

Brachypeplus omalioides Sharp, Tr. ent. Soc. London, 1878, p. 136.

This species was described from four specimens. We have now a series of 49 individuals. The species is in some respects very close to *E. subaper*. It differs in having a much more scanty and delicate pubescence, especially on the pygidium and last ventral segment, which are far less coarsely punctuated than in *E. subaper*. It is a comparatively elongated, smooth, and even species. A few specimens vary in the direction of *E. subaper*, in having the pygidium rather more coarsely punctuated. The elytra frequently have rather larger punctures, and are smoother. *E. omalioides* differs from both *E. subaper* and *E. aper* in having the male supplementary segment not at all tapering, but rounded, or truncate in the middle.

The male pygidium is truncate, scarcely emarginate, broader at the end than that of *E. subaper*. Female pygidium more rounded than that of *E. subaper*.

The males as a whole are darker than the females, but one female is the darkest of all. A few males approach the condition of the var. *dimidiatus* of allied species, having the anterior and outer parts of the elytra dark, and the posterior and inner parts of a lighter, yellowish colour; and a small light patch at the base of either elytron near the scutellum.

HAB. Oahu, Hawaii. It is a characteristically *Freycinetia*-haunting species, being found in the flowers, at the bases of the leaves, &c.—Oahu; apparently widely distributed, but not many found together; Waianae mts. about 3000 ft. (no. 547); Konahuanui Ridge (no. 783); mountains near Honolulu, 2000 and 3000 ft. (Perkins); Blackburn also records it (Tr. Dublin Soc. III. 1885, p. 230) as occurring in considerable numbers in Oahu, and notes its preference for *Freycinetia*.—Hawaii; recorded from this island, as well as from Oahu, by Blackburn (l.c.).

(16) *Eupetinus brevicollis*, sp. nov.

Latus, depressus, fusco-testaceus, nitidus, limbo, abdominis apice pedibusque flavis; antennis brevibus, clava nigricante; prothorace fortiter transverso, haud rugoso, angulis posterioribus obtusis; elytris parum inaequalibus, regulariter punctato-striatis; abdomine obsolete punctato. Long. 3¼, lat. 1¾ mm.

This species has short antennae (Pl. XIV. fig. 19), with the seventh, eighth and ninth joints shorter than usual. The lateral margin of the elytra is moderately broad.

We have one specimen, a male. It comes nearest to *E. spretus*, but appears to be a smaller and flatter insect, and to be definitely distinguished by the antennae. Varieties of *E. omalioides* may resemble *E. brevicollis* in colour, but the sculpture is different and the antennae not quite so short.

Though we have only one example from Waianae, I have no doubt of the distinctness of this species. An individual from near Honolulu though excessively immature, and consequently unnaturally pallid and depressed, has the same structural characters and probably pertains to this species.

Hab. Oahu; Waianae, 3000 ft., IV. 1892; Honolulu, VIII. 1900 (Perkins). D. S.

(17) *Eupetinus tardus*, sp. nov.

Sat latus, aequalis; prothorace crebre haud profunde punctato, ad basin angustato, disco obsolete quadri-impresso, angulis anterioribus parum rotundatis; elytris haud profundius sulcatis, ad latera sat late explanatis; abdomine sat subtile punctato. Long. 3½ mm.

This species is distinguished by its broad form and relatively even surface, the elytra being scarcely at all impressed. The thorax is relatively longer than in *E. brevicollis*: its punctures are rather shallow with radiating striae. The antennae are not conspicuously shortened as in *E. brevicollis*. Abdominal punctuation not coarse. Male supplementary segment rounded in outline. We have two specimens, a male and a female.

Hab. Oahu, Kawailoa, "from the gulch itself and very far up," 1893 (no. 41, Perkins). H. S.

(18) *Eupetinus aper*, Sharp.

Brachypeplus aper Sharp, Tr. ent. Soc. Lond., 1878, p. 137.

This species was described from a single very good male specimen from Oahu. We have now a series of fifty specimens. In the original diagnosis the insect was described as "testaceus, fusco-variegatus, opacus, parce pubescens." Our series would be more correctly described as "flavo-ferrugineus, fusco-variegatus, leviter nitidus, crebre pubescens." The colour varies considerably. Many specimens are light, with a dark band down the centre of the prothorax and of the abdomen, and small dark marks close to the fimbriae of each abdominal segment. The scutellum is almost always dark. The elytra are usually somewhat darker, in some specimens very dark. In a few specimens, the distribution of dark and light colours on the elytra is such as to produce a light patch on the posterior inner part of either elytron, thereby approaching the condition found in several closely-allied species, and most marked in the var. *dimidiatus* of *E. inaequalis*. The cross-striations between the furrows of the elytra are conspicuous.

The male supplementary segment tapers, but is rounded at the extreme apex; it bears long hairs. The male pygidium is coarsely punctuate, almost truncate, scarcely emarginate. Female pygidium broad, slightly rounded.

HAB. Oahu; mountains near Honolulu, 2000—3000 ft.; apparently found on many occasions, but in small numbers (Perkins). H. S.

(19) *Eupetinus marginatus*, sp. nov.

Sat latus, testaceus plus minusve infuscatus, leviter nitidus, subtiliter pubescens; prothorace punctis obsoletis stellatisque, disco obsolete quadri-impresso, transverso, antrorsum conspicue angustato, posterius parum angustato, angulis posterioribus argutis; elytris late explanatis, obsolete impressis, sulcis argutis punctatis, interstitiis parum latis transverseque striatis. *E. apri* affinis, sed angustior, tenuius pubescens, prothorace posterius minus angustato, elytrorum interstitiis minus conspicue transverse striatis. Long. corp. circa $3\frac{3}{4}$ mm.; lat. corp. circa $1\frac{1}{2}$ mm.

This is a species in which the explanate margins of the elytra are very broad. The punctures of the prothorax are obsolete and striae radiate from them, producing a star-like appearance. The male pygidium is truncate with rounded angles; that of the female decidedly narrowed and rounded at the apex, more so than in several allied species. The male supplementary segment tapers, but is rounded at the apex. Twenty-eight specimens.

HAB. Molokai. 4000—4500 ft., and over; "above Pelekunu," "highest forest," &c. (Perkins). H. S.

(20) *Eupetinus lanaiensis*, sp. nov.

E. marginati peraffinis, sed prothorace breviore, fortiter transverso, minus obsolete punctato, haud conspicue stellate striato, angulis posterioribus obtusis; elytris parum inaequalibus; abdomine crebrius punctato. Long. corp. $3\frac{1}{3}$—$4\frac{1}{8}$ mm.; lat. corp. $1\frac{1}{2}$—$1\frac{3}{4}$ mm.

This species is definitely distinguished from *E. marginatus* by the shape and punctuation of the prothorax. The female pygidium is broader at the apex, and subtruncate, not so rounded. Twenty-six specimens.

HAB. Lanai. 2000—3000 ft.; Halepaakai, &c. (Perkins). H. S.

Eupetinus lanaiensis var. *mauiensis*, var. nov.

A single female specimen from Maui differs from *E. lanaiensis* in having the sides of the prothorax more sinuate posteriorly, and the pygidium less coarsely and densely punctuated.

HAB. Maui, Haleakala, 4000 ft. (Perkins). H. S.

(21) *Eupetinus dubius*, sp. nov.

Latus, brevis, fusco-testaceus, marginibus pedibusque testaceis, leviter nitidus, tenue pubescens; prothorace fortiter transverso, ad latera conspicue explanato, lateribus rotundatis, angulis posterioribus obtusis, sat rare sed argute punctato; elytris late explanatis, inaequalibus; sulcis haud profundis, punctatis; interstitiis latis laevibusque; abdomine sat rare punctato. Long. corp. $3\frac{1}{4}$—$3\frac{1}{2}$ mm.; lat. corp. circa $1\frac{1}{2}$ mm.

This species is distinguished from *E. lanaiensis* by its smaller size, and greater proportionate breadth. The punctuations on the prothorax are further apart; the interstices of the elytra broad and smooth, without the transverse striations of *E. lanaiensis* and *E. marginatus*, and giving a more shining appearance to this species. The punctuations on the abdomen are less numerous, the pubescence is delicate.

The male supplementary segment tapers somewhat, and is rounded at the apex; in one specimen of the *dimidiatus* form it is blunter, subtruncate. Male pygidium truncate with rounded angles; female pygidium broader, more or less rounded.

Var. *dimidiatus*; this form is present in both sexes. Sixteen specimens.

HAB. Lanai. Halepaakai, VII. 1894 (no. 134); 2000—3000 feet (nos. 80, 87, 92, 93, Perkins). H. S.

Eupetinus dubius, var.?

A single male of the *dimidiatus* form from Oahu (near Honolulu, 2000 ft., no. 61, Perkins) resembles *E. dubius*, but has the thorax longer and less narrowed in front.

There is also a very immature female from Oahu (IV. 1901, no. 750, Perkins), with broad margins to the elytra; the thorax differs in shape from that of *E. dubius*; the species is quite uncertain.

(22) *Eupetinus brevicornis*, sp. nov.

Sat latus, nigricans, marginibus testaceis, pedibus antennarumque basi fusco-testaceis; antennis brevibus; prothorace fortiter transverso, ad latera conspicue explanato, antrorsum fortiter posteriusque parum angustato, angulis posterioribus argutis, crebre punctato; elytris impressis, ad latera late explanatis, sulcis punctatis, interstitiis haud latis; abdomine crebre punctato, parum conspicue pubescente. Long. corp. $3\frac{1}{3}$ mm.; lat. corp. $1\frac{1}{2}$ mm.

A single female from Lanai is close to *E. dubius*, but differs in the shape and punctuation of the prothorax; in having the conspicuously shortened antennae; and in being more closely punctuated and coarsely pubescent; especially on the abdomen. These characters render it quite distinct. The pygidium is coarsely punctuated.

HAB. Lanai, 3000 ft., II. 1894 (Perkins). H. S.

(23) *Eupetinus latimargo*, sp. nov.

Sat elongatus, testaceus plus minusve infuscatus, leviter nitens, parce pubescens; antennis sat brevibus; prothorace fortiter transverso, angulis anterioribus et posterioribus argutis, disco obsolete quadri-impresso, sat rare punctato; elytris latius explanatis, obsolete inaequalibus, sulcis punctatis haud profundis, interstitiis latis laevibusque; abdomine tenuissime pubescente, punctis minutis sat raris. Long. corp. $4\frac{1}{4}$ mm.; lat. corp. $1\frac{3}{4}$ mm.

We have two specimens, both females, from Maui. In general form, the shape of the prothorax, and the character of the punctuation, sculpture and pubescence they closely resemble *E. omalioides*, but are readily distinguished by the much greater breadth of the explanate margins of the elytra, which here reach their highest development. The impressions on the thorax and elytra are very slight, and the insect has a smooth and even appearance, as has *E. omalioides*. The antennae are shorter than in many specimens of the latter.

HAB. Maui, Haleakala, 3000 ft. (Perkins). H. S.

(24) *Eupetinus laevigatus*, sp. nov.

Conspicue latus, leviter nitidus, tenuius parciusque pubescens; colore varians, aut niger marginibus ferrugineis, aut ferrugineus plus minusve infuscatus, pedibus antennarumque basi fusco-ferrugineis; pedibus sat crassis; prothorace transverso, parum quadrangulari, anterius posteriusque parum angustato, angulis posterioribus obtusis, crebre punctato, disco interdum obsoletius quadri-impresso; elytris latius explanatis, obsoletius inaequalibus, sulcis punctis magnis, interstitiis laevibus; abdomine subtile punctato. Long. corp. $3\frac{1}{2}$—4 mm.; lat. corp. $1\frac{3}{4}$ fere 2 mm.

Pl. XIV. fig. 1, ♂.

This very variable species is characterised by being short, smooth and shining, and very scantily pubescent. The legs are somewhat thick. The broad margins of the elytra reach a degree of development as great as those of *E. latimargo*. The male supplementary segment is rounded; male pygidium truncate with rounded angles, female pygidium rounded and somewhat long. The amount of punctuation and pubescence on the abdomen varies considerably.

The var. *dimidiatus* is present.

Var. *vittatus*. In two males the distribution of light and dark colour on the elytra differs from that in var. *dimidiatus*. The colours are arranged in longitudinal bands. The explanate margins are light, as in all other specimens; within the margin is a broad dark band, then a narrower light band, then a narrow dark band running along by the suture. Twenty-six specimens.

HAB. Maui. West Maui mts., 4000 ft., from *Freycinetia* (no. 368); Haleakala 2000 and 3000 ft. (nos. 772, 809, 826, 845, Perkins). H. S.

Eupetinus laevigatus var. *molokaiensis*, var. nov.

Elytrorum margines angustiores. Prothorax magis elongatus.

Two small female specimens from Molokai differ in the above respects from the Maui specimens. It is possible that if we had a larger series, this would prove to be a distinct species.

Hab. Molokai; mountains, above 3000 ft. (nos. 177 and 179, Perkins). H. S.

NESOPEPLUS, gen. nov.

Prosternum mox pone coxas deorsum curvatum. Elytra margine externo haud explanato.

The members of this genus are readily distinguished from *Gonioryctus* by their smaller eyes which are finely faceted, by the less angulate antennal grooves and the smaller tarsi. They come much nearer to *Nesopetinus*, in which genus the prosternal process when seen in profile (Pl. XIV. fig. 16) appears to be somewhat prolonged behind the insertion of the coxae, and with its apex but little directed upwards; and when seen from behind shows a free edge (Pl. XIV. fig. 18), whereas in *Nesopeplus* the process is curved upwards immediately behind the coxae (Pl. XIV. fig. 15) and when seen from behind presents a short vertical face (Pl. XIV. fig. 17). The character is not a very good one, as there are some differences in each of the genera both as to the curving upwards of the process, and as to its length.

Nesopeplus and *Nesopetinus* may be further characterised as follows. The apex of the male pygidium has more or less of an emargination. This ranges from an extremely shallow, hardly noticeable, sinuation, to a deep definite notch; and the apical angles vary in form from rounded and not at all produced in the former case, to definite tubercles or sharp produced teeth in the latter. The males of *Eupetinus* do not have the pygidium emarginate. *Nesopeplus* and *Nesopetinus* also lack the four definite impressions on the thorax, and the impressions on the elytra, so frequent in *Eupetinus* and its allies: the elytra also, though almost always seriately punctuated, lack the very definite longitudinal furrows of *Eupetinus*, and their lateral margins are not expanded as in that genus. The whole form of the insects is much smoother, and usually more convex, than in *Eupetinus*, and the thorax is frequently less strongly transverse and less angular. *Nesopeplus* and *Nesopetinus* are also characterised by more or less of a brassy lustre; and by delicate pubescence, also almost always brassy-lustred, and not aggregated into definite tufts as in several species of *Orthostolus*, &c.

In many species of this genus and *Nesopetinus*, sexual dimorphism is exhibited also in the form of the thorax; that of the male being very distinctly broader and more closely-punctured than that of the female.

The species of this genus defy attempts at tabulation. The following division into groups, though very unsatisfactory, may possibly be of some little assistance.

Group 1. Thorax distinctly transverse, laterally explanate, and with lateral margins not at all sinuate before the hind-angles. Male pygidium with a definite but shallow notch, and the angles forming short teeth (Pl. XIV. fig. 11 *b*). Species 1—6.

Group 2. Thorax usually distinctly transverse, its lateral margins not at all sinuate. In all cases where the male is known, the pygidium is not notched, at most very shallowly emarginate, with very blunt rounded apical angles (Pl. XIV. fig. 8 *a*). Species 7—15.

Group 3. A number of forms which cannot well be placed in the other groups. Thorax very variable in form, but usually longer in proportion to its breadth than in Groups A and B. Its sides not sinuate. Male pygidium (except in no. 19, *N. testaceipes*) with a definite notch, the angles usually forming sharp teeth (Pl. XIV. fig. 14 *b*). Species 16—25.

Group 4. Thorax much longer, often almost as long as broad: its lateral margins in varying degree sinuate before the hind angles, which are definite, not blunted. Male pygidium (except in no. 32, *N. ater*) with conspicuous notch and the angles forming sharp teeth. Species 26—32.

Group 1.

(1) *Nesopeplus inauratus*, Sharp.

Brachypeplus inauratus Sharp, Tr. ent. Soc. London, 1881, p. 508.

Brachypeplus affinis Sharp, op. cit. p. 509.

This is an extremely variable species. Coloration goes for nothing in it, as it varies from nearly entirely black, to being nearly completely yellow-red; and the forms with spots and marks are very numerous. The male usually has the thorax a little broader and more densely punctured than the female, but this sexual character is likewise variable, and there is also a good deal of variation in the thoracic punctuation of the female.

The species seems to be abundant in Hawaii, from which island we have a series of about 380 specimens. The insect being so protean I am unable to distinguish *N. affinis* even as a definite variety.

From *Nesopetinus celatus* and *N. scottianus* the *Nesopeplus inauratus* may always be distinguished by the prosternal process, which is very small, and is bent upwards immediately behind the front coxae, so that it appears not at all to extend backwards.

Plate XIV. fig. 11 *a* shows the male terminal segment. The pygidium (Pl. XIV. fig. 11 *b*) has a shallow notch and the angles projecting as short teeth; last ventral segment with the apical angles slightly projecting (fig. 11 *c*), as in so many species of the genus. Supplementary segment somewhat rounded. Female pygidium short, slightly rounded at apex.

Hab. Hawaii. Kilauea: Hualalai, about 5000 ft.: Kona, 2000—5000 ft., beaten from Koa, Acacia and other trees, also from flowers and dead wood (Perkins). Also Mauna Kea, 3000 and 7000 ft., from flowers (Blackburn). D. S.

(2) *Nesopeplus collaris*, sp. nov.

Rufo-obscurus, prothoracis lateribus, antennis pedibusque flavis; prothorace haud fortiter transverso, lateribus rotundatis, anterius fortiter angustato, angulis posterioribus obtusis, dense fortiter punctato; elytris seriatim minus obsolete punctatis. Long. 3, lat. $1\frac{1}{3}$ mm.

Similar to *N. inauratus*, with a longer thorax more narrowed in front, and more densely and coarsely punctate. The unique specimen is about the size of the smallest *N. anticatus*, and is perhaps nearer to that species than to *N. inauratus*, but it has a more coarsely punctate thorax, with more rounded hind angles. The emargination of the last dorsal plate of the male is not very deep; the angles project quite distinctly but are not sharp.

A single specimen from Molokai is intermediate between the type of *N. collaris* and *N. curtithorax*. It has the thorax shorter and more finely punctured than the type (Lanai) specimen of *N. collaris*, thereby approaching *N. curtithorax*.

Hab. Lanai, Molokai.—Lanai, about 2000 ft. xii. 1893 (no. 92).—Molokai, 3000 feet, 12. vi. 1893 (no. 176, Perkins). D. S.

(3) *Nesopeplus curtithorax*, sp. nov.

Sat latus, fusco-testaceus, prothoracis lateribus testaceis, subtile pubescens; prothorace lato, parum curto, antrorsum parum angustato, lateribus explanatis rotundatisque, disco crebre punctato; elytris seriatim punctatis. Long. corp. $3\frac{1}{8}$ mm.

A single male specimen from Kauai, in bad preservation, is close to *N. inauratus*, but (like *N. collaris*) has a wider, more ample thorax. The thorax, however, is shorter than that of *N. collaris*, more finely punctured, and has its sides not quite so conspicuously rounded. It is the only species of the *inauratus* type from Kauai.

Pygidium with shallow notch, teeth on either side short and blunt; supplementary segment rounded; last ventral segment slightly emarginate.

Hab. Kauai, Halemanu, 4000 ft. (no. 507, Perkins). H. S.

(4) *Nesopeplus anticatus*, sp. nov.

Testaceus, prothoracis disco, elytris plusminusve, abdominisque medio fuscescentibus; prothorace minus fortiter transverso, lateribus rotundatis, anterius longius angustatis, basi fere recte truncata, angulis posterioribus leniter obtusis. Long. $3\frac{3}{4}$, lat. $1\frac{1}{3}$ mm.

Similar to the paler, more densely and finely punctate varieties of *N. inauratus*, but with the sides of the thorax more rounded and more strongly narrowed in front; the length of the thorax is rather greater, and it is very densely punctate. The sides of the thorax are broadly explanate behind.

In the male of this species there is only a slight emargination of the apex of the last dorsal plate, and the hind angles project very little and are not sharp or tooth-like. Twenty-five specimens.

HAB. Oahu. Mts. near Honolulu, 2000—3000 ft.; Konahuanui Ridge XII. 1900; Nuuanu Valley (Perkins). D. S.

(5) *Nesopeplus olindae*, Blackburn.

Brachypeplus olinda Blackburn, Tr. Dublin Soc. III. 1885, p. 132.

Fusco-testaceus, vix metallescens, elytris testaceis fusco-variegatis; thorace lateribus rotundatis, angulis posterioribus obtusis, crebre punctato. Long. 4 mm.

I think this is the species Mr Blackburn described under this name. It is true that he says the thorax is not explanate at the sides, while the sides are quite distinctly explanate; but I find that his type in the British Museum agrees with our specimens, though unfortunately it is not in good condition. The male pygidium has a shallowy notch at the apex with the angles prominent and acute, but not so markedly as in *N. segnis*.

The species seems to be very variable and I assign to it a short series coming from several islands, and differing much as regards coloration. The females too have the thorax more distinctly punctured than the males.

From both *N. segnis* and *N. anticatus* the species differs in the thorax being less narrowed in front, and more densely punctured. In the structure of the male pygidium it is intermediate between the two. Forty-five specimens.

HAB. Maui, Molokai, Lanai.—Maui; Haleakala 4000—5000 ft. (Olinda, &c.) 1894 and 1896.—Molokai; 3000 ft. up to highest forest; head of Pelekunu, &c.—Lanai; 2000 feet, some labelled "Koele mts." (Perkins). D. S.

(6) *Nesopeplus segnis*, sp. nov.

Fusco-testaceus, supra metallescens, antennarum basi pedibusque testaceis; prothorace lateribus rotundatis, anterius fortiter angustato, angulis posterioribus obtusis, dense punctato; elytris subtilius seriatim punctatis. Long. $3\frac{1}{2}$, lat. $1\frac{1}{3}$—$1\frac{1}{2}$ mm.

The male has a much denser punctuation of the thorax than the female. The species comes very near to *N. anticatus* but has the thorax more strongly rounded at the sides, and the male characters are distinctly different, the emargination of the pygidium being deeper and the angles more sharp. This character distinguishes *N. segnis* from all the species that are very similar to it, and brings it near to *N. bidens*, which has the prothorax differently shaped, and differs in so many details that it scarcely suggests an alliance with this species. The female pygidium is rather narrow apically. Five specimens.

HAB. Kauai. Koholuamano; Makaweli, 2500 ft.; Halemanu, 4000 ft.; above Waimea 4000 ft., from various trees, and flowers of "haha." (Perkins.) D. S.

Group 2.

(7) *Nesopeplus vagepictus*, sp. nov.

Subparallelus, haud latus, nec depressus, capite thoraceque rufo-obscuris, abdomine pectoreque nigricantibus, elytris testaceis vage fusco-pictis, antennis pedibusque flavis, his brevibus et crassis; elytris seriatim haud fortiter punctatis. Long. 3¾—4, lat. 1⅓ mm.

This little insect is somewhat variable as regards the colour of the thorax and abdomen, but the elytra are always greyish-yellow with numerous indefinite dark marks. The sides of the thorax are less rounded than usual, the base is straight, the hind angles not definite, slightly obtuse and rounded; the punctuation is dense; on the front of the thorax in the larger males, very dense. The elytra are dull, with a peculiar silky lustre, the serial punctuation is fine and regular, but the striae are not depressed, so that in some lights the sculpture does not show at all; the spots of dark colour are vague. The abdomen is less wedge-shaped than usual. The legs very short and thick. The pygidium of the male (Pl. XIV. fig. 8 *a*) is broad at the tip, not visibly emarginate, the angles extremely obtuse. The form of the last ventral plate is shown in Pl. XIV. fig. 8 *b*. Supplementary segment broad, rounded. Female pygidium short, rather narrow and rounded apically. Twenty-four specimens.

HAB. Maui, Haleakala, 3000 ft. (nos. 772, 809, Perkins). D. S.

(8) *Nesopeplus molokaiensis*, sp. nov.

Sat latus, haud depressus, capite thoraceque rufis, abdomine pectoreque nigricantibus, elytris testaceis vage fusco-pictis, antennis pedibusque flavis; elytris seriatim haud fortiter punctatis. Long. 3½, lat. 1½ mm.

A small series of seven specimens from Molokai can be distinguished from the Oahuan *N. vagepictus*. The form is a little less parallel, the thorax rather shorter, a little more narrowed in front, and with more rounded hind angles: the elytral sculpture is slightly coarser, and in the female the punctures of the thorax are not quite so dense. The male pygidium is not emarginate, and has very blunt angles. If looked on as a variation of *N. vagepictus* it is of interest as being dissimilar from *N. roridus* which may almost with equal reason be considered a variety.

HAB. Molokai, Kahanui, VIII. 1893 (no. 153, Perkins). D. S.

(9) *Nesopeplus roridus*, sp. nov.

Dense punctatus, evidenter pubescens, haud nitidus, niger, antennarum basi prothoracisque marginibus flavis, elytris flavo-variegatis, pedibus testaceis, plus minusve fuscescentibus; elytris minus obsolete sculpturatis. Long. 3—4, lat. 1⅓—1½ mm.

This is really very closely allied to *N. vagepictus*, though looking different on account of the dark colour. The antennae are yellow, with the club black. The upper surface has a more or less slightly metallic tinge, and the sides of the thorax are narrowly yellow; except for this the insect looks blackish though there are obscure yellowish marks on the elytra. The thorax in the male is extremely densely punctured and quite dull, in the female the punctuation is not quite so dense. The elytra have a rough appearance, the striae being slight but sufficient to interfere with the regularity of the surface, and the punctures are not very minute. The legs are sometimes nearly clear yellow and at others blackish. It is difficult to distinguish the male and the female by the pygidial structure, the male pygidium not being emarginate, but the male is often very different from the female by the larger size, broader thorax, and the very dense punctuation of it and the head; the female has the legs thinner than the male.

The above description is taken from Kauai examples which are the most distinct. The small series from Maui does not differ much from the Kauai examples. From Lanai there are two examples, one of them very immature, the other in bad preservation; they appear to come nearer than the others to *N. vagepictus*.

The series from Oahu consists of 24 examples, 18 from Waianae of small size, six from the Kaala mountains and other localities. In these specimens the colour is variable, but the dark pigmentation is less than in the Kauai exponents. There are also three specimens, from the Waianae mountains, which are of the largest size of the species, and are specially deficient in dark coloration, but I can find no definite evidence of anything more than variation.

HAB. Kauai, Maui, Oahu, Lanai.—Kauai: Halemanu, 4000 ft.; above Waimea; a series recorded from "high plateau"; &c.—Maui: Haleakala, 5000 ft., Olinda, 3000—4000 ft., woods below Olinda.—Oahu: a series of small specimens from Waianae mts. (lee side) 2000—3000 ft. II. 1896 (nos. 541, 670); the three large specimens also from the Waianae mts. "beaten from flowers and branches and from inside fruit of isolated tree," IV. 1892; other specimens from Kaala mts. 3000 ft., and from Mokuleeia.—Lanai; 2000 feet.—(Perkins.) D. S.

(10) *Nesopeplus fallax*, sp. nov.

Rufus, antennis pedibusque testaceis; parce pubescens, sat nitidus, thorace minus fortiter transverso, lateribus parum rotundatis, fortiter punctato, pone medium obsolete bi-impresso; elytris seriatim subtiliter punctatis. Long. 3½, lat. 1⅓ mm.

We have four specimens of this obscure species. By the male characters it comes nearest to *N. vagepictus*, but the prosternal process is a little more prominent and therefore the species is an approximation to *Nesopetinus*, like *N. abnormalis* and others in a similar condition. I expect it will prove merely to be an ally of *N. vagepictus* with slightly different prosternum. The thorax is narrow, slightly narrowed in front, very little explanate at the sides, the hind angles nearly rectangular, the punctuation coarse, in front denser and finer, everywhere so dense as to make the surface dull except for a few larger interstices along the middle; the two larger depressions are very shallow. The serial punctuation of the elytra is very fine, and there is a scanty fine punctuation on the interstices which are a little shining. The male pygidium is extremely slightly emarginate, with very obtuse angles.

An immature example of the female sex probably belongs to this species; it has a little less punctuation on the thorax as is the case with many other species.

HAB. Maui. Haleakala, 3000 ft. (no. 809) and 5000 ft. (no. 615) (Perkins). D. S.

(11) *Nesopeplus floricola*, Blackburn.

Brachypeplus floricola Blackburn, Tr. Dublin Soc. III. 1885, p. 134.

Latus, sat convexus, prothorace fortiter transverso, antennis angustato, fortiter punctato; elytris subtiliter punctatis, absque punctis seriatis. Long. 3½, lat. 1¾ mm.

Described from a single specimen by Mr Blackburn: we have now a large series of this remarkable—though highly variable—species. It may always be distinguished from every other *Nesopeplus* by the total absence of the serial punctuation of the elytra. In colour it varies from black to yellow; with numerous varieties in the way of pattern on the elytra. The head is small in proportion to the general width, the eyes are prominent and have no margin at all behind them. The thorax is much explanate at the sides behind, with the angles very obtuse, the punctuation coarse, and looking somewhat like the surface of a file. The male pygidium is not notched at the tip, but has a perceptible emargination and its angles are very rounded; in the female the pygidium is broad at the tip and very gently rounded. We have 197 specimens.

HAB. Kauai. Halemanu, 4000 ft.; Koholuamano; Makaweli; mts. above Waimea, 4000 ft.; high plateau: (Perkins): Waiahale, 2500 ft. (Blackburn). D. S.

(12) *Nesopeplus pictus*, sp. nov.

Rufo-testaceus, supra plus minusve aenescens, tenuiter pubescens, nitidus, thorace abdomineque medio nigricante, elytris fusco-aeneis, rufo-variegatis, evidenter seriatim punctatis; prothorace fortiter transverso, haud dense punctato. Long. 3½—4½, lat. 1½—1¾ mm.

This species does not appear closely allied to any other. It is perhaps most similar to *Nesopetinus varius*. The form of the prosternal process will not permit the species to be placed satisfactorily in *Nesopetinus*, and I therefore locate it with the aberrant *Nesopepli* that come nearest to *Nesopetinus*.

It varies a good deal in colour, but the colours are more vivid than usual; the marks on the elytra consist of longitudinally placed yellow marks, of variable extent, the largest immediately behind the scutellum. The abdomen may be entirely yellow, or as the other extreme, blackish, slightly yellow about the margins. The thorax is distinctly narrowed behind; the angles there are definite though obtuse; the explanation of the sides is less definite than usual. The abdominal punctuation is fine and scanty.

The male has the punctuation of thorax finer and denser than the female. The structure of the pygidium is much the same as it is in *Nesopetinus varius*, the male having only an extremely slight emargination of the hind margin, and the angles very rounded. Eight specimens.

HAB. Hawaii. Kaumana, Hilo, 2000 ft. (no. 697) and Amaula, Hilo, 2000 ft. (no. 559); (Perkins). D. S.

(13) *Nesopeplus abnormalis*, sp. nov.

Niger, supra aeneo-micans, prothorace lateribus testaceis, antennarum basi pedibusque rufo-obscuris, abdomine subtus interdum rufescente; prothorace sat fortiter punctato, bifoveolato; elytris seriatim subtiliter punctatis. Long. fere 4, lat. $1\frac{2}{3}$ mm.

A rather robust species, with short stout legs; most like *Nesopetinus scottianus*, slightly larger and broader, and bearing two small depressions on the thorax in front of the base in the middle. The thorax has the base nearly straight, the hind angles well marked, not at all rounded but slightly obtuse; the pubescence scanty; the serial punctures of the elytra very lightly impressed. The female pygidium is short and broad, rather narrowed apically. The male has not been found. Eight specimens.

The species is abnormal inasmuch as the prosternal process behind the coxae is very short; as its short terminal portion is strongly curved upwards, the insect is better placed in *Nesopeplus* than in *Nesopetinus*.

HAB. Maui. Haleakala, 5000 ft.: in one case is added "from flowers of tree *Lobelia*" (nos. 358, 359, 369, Perkins). D. S.

(14) *Nesopeplus solitarius*, sp. nov.

♀ minus depressus, fusco-rufus, parce pubescens, sat nitidus, antennis pedibusque testaceis; thorace fortiter transverso, elytris angustiore, parce punctato, ante medium bifoveolato; elytris seriatim subobsolete punctatis. Long. $3\frac{2}{3}$, lat. $1\frac{1}{2}$ mm.

Head small. Thorax considerably narrower than the elytra, but much broader than long, the sides much narrowed and rounded in front, slightly narrowed behind, the hind angles well marked, rectangular: the explanation of the sides narrow, but at the hind angles distinctly broader and quite definite; the punctuation is scanty and not coarse, and in front of the middle there are two small, rather deep depressions. The punctuation of the elytra is fine, remote and indistinct, but its seriate nature is evident. The abdomen is sparingly punctate. The legs are short. The undersurface ferruginous in colour, with very little punctuation. The pygidium is rather narrow and rounded apically.

We have only one specimen of this species; it does not appear to be closely allied to any other, but perhaps comes nearest to *N. abnormalis*. It has some resemblance to *Nesopetinus pusillus* ♀. The two foveolae on the thorax are very peculiar, but I feel some doubt as to their being quite natural.

HAB. Maui, 1900 (no. 817, Perkins). D. S.

(15) *Nesopeplus insolitus*, sp. nov.

Nigricans, thoraceo piceo-rufo, lateribus dilutioribus, abdomine flavo, pedibus sordide rufis; parce subtiliter pubescens, nitidus; thorace basin versus angustato, angulis posterioribus obtusis, haud rotundatis; elytris seriatim subobsolete punctatis; abdomine parce punctato. Long. 3½, lat. 1½ mm.

We have only a single example of this species, it is a female, and probably a variety in colour. It is however obviously different from *N. inauratus*, and as it does not apparently come very near any other species I have given it a name. The posterior angles of the thorax are more definite than in *N. inauratus* and the abdomen more sparingly punctate. The pygidium is short, rather narrow apically.

HAB. Oahu, near the head of the South branch of Kawailoa gulch, IV. 1893 (no. 239, Perkins). D. S.

Group 3.

(16) *Nesopeplus serratus*, sp. nov.

Flavo-testaceus, fusco-variegatus, subtile pubescens, antennis pedibusque testaceis; prothorace transversim quadrato, angulis obtusis ac parum rotundatis, lateribus explanatis parumque rotundatis, disco crebre punctato plus minusve infuscato; elytris seriatim, vix confuse, punctatis; abdomine infuscato, crebre punctato. Long. corp. 2½—3⅓ mm.

♂ segmentum terminale marginibus serratis.

This species is in several ways remarkable. The coloration is distinctive, and not so variable as it is in many allied forms. The ground colour is distinctly yellowish, contrasting with darker areas. The thorax is dark, with light lateral margins. The scutellum is dark. Immediately round its edge, there is a narrow light portion of the elytra. Just posterior to this, there is on either elytron a dark band running obliquely forwards from the suture to the base of the elytron, where it turns backwards and outwards, ending in a patch on the lateral margin in front of the middle; the rest of the elytron is light, except for a dark patch at the middle of the posterior border.

The difference between the sexes is considerable, and is parallel to that found in other members of the genus. The thorax of the male is broad and very closely punctured, that of the female less closely punctured, usually narrower as a whole and more narrowed towards the front.

Male pygidium rather short, very rough and coarsely punctured; with a somewhat deep, narrow notch; the teeth on either side stout and incurved; the margins of these teeth, and the lateral margins of the last ventral segment, are serrate owing to the presence of tooth-like projections, and the pubescence projects over the margins, which therefore are ciliate. The supplementary segment is very slightly emarginate, with a fringe of long hairs on either side of the emargination (see Pl. XVI. fig. 5: in this figure the hairs are not represented).

The female pygidium is rather short and broad, with a rounded apex. Twenty-eight specimens.

HAB. Oahu. Waianae mts., 2000 ft. &c., IV. 1892; "on Kukui tree"; "beaten from flowers and branches and from inside fruit of isolated trees" (nos. 8, 14, 26, Perkins). H. S.

(17) *Nesopeplus bidens*, Sharp.

Brachypeplus bidens Sharp, Tr. ent. Soc. London, 1881, p. 510.

This species was described from a single male found on flowers on Mauna Loa, at 4500 feet. We now have 16 specimens. The prothorax is stated in the original description to be "longer than broad," but in our specimens is distinctly broader than long; the sinuation of the lateral margins near the hind angles is extremely slight, and not always present; the punctures are fine, numerous, but somewhat obsolete; sometimes there are two very slight depressions on the posterior part of the disc. The coloration is striking; the prothorax is yellow-testaceous; contrasted with this, the elytra are very dark (though some specimens have a yellow patch near the scutellum, sometimes drawn out along the inner margins), often with a distinct violet reflection; the abdomen varies from entirely yellowish to entirely dark. There is a considerable variation in size, from $2\frac{7}{8}$ to $3\frac{1}{2}$ mm. in length: the females are on the whole smaller, and all our very small specimens are of this sex.

The notch in the male pygidium (Pl. XIV. fig. 14*b*; the notch here appears somewhat too narrow) is broad and somewhat deep, the tooth on either side being narrow and sharp: outline of last ventral plate shown in Pl. XIV. fig. 14*a*: supplementary segment more or less sinuate, the part on either side of the sinuation rounded and bearing long hairs. Female pygidium rather narrow at the apex; the posterior margin very slightly rounded, and depressed centrally, so that in some positions it appears emarginate.

HAB. Hawaii. Kona, 3000 ft. (no. 201, x. 1892; no. 217 "beaten from various trees"); Kilauea VI. 1895 (no. 692): Haumana, Hilo, 2000 ft., I. 1896 (no. 697): and the six very small females all from above Hilo, 1800 ft., XII. 1895 (nos. 558 and 567): (Perkins). H. S.

(18) *Nesopeplus lambianus*, sp. nov.

Sat elongatus, aequalis, niger, antennis nigricantibus, pedibus rufo-nigris, nitidus, plus minusve aeneo- et violaceo-micans, subtile sed parum conspicue pubescens, crinibus aeneis decumbentibus; prothorace magno, sat convexo, elytris fere latiore, crebre punctato, posterius angustato, lateribus fortiter rotundatis posteriusque parum explanatis, angulis posterioribus fere rectis; elytris convexis, subtile seriatim punctatis; abdomine posterius angustato, crebre sed vix dense punctato. Maris segmentum terminale emarginatum. Long. corp. 3—3½ mm., lat. corp. 1¼—1⅓ mm.

Plate XIV. fig. 3, ♂.

So far as can be judged from our series, this species is one of the most distinct and least variable. The shape is elegant and characteristic, the prothorax being broad and the body gradually tapering away posteriorly. The coloration appears to be constant, but the violet reflection varies in amount, and is sometimes of different shades in different parts of the body. Male pygidium conspicuously notched, the outline of the notch rounded, the process on either side moderately prominent; supplementary segment remarkable, with a conspicuous notch with rounded outline and on either side a rounded process covered with long hairs; posterior margin of last ventral segment slightly emarginate, fringed with short hairs. Female pygidium rather long and narrow at the apex, with sides slightly sinuate and posterior margin slightly rounded, and a conspicuous apical depression which makes it appear emarginate. The female last ventral segment has not a bisinuate posterior margin as in *N. testaceipes*. Thirty-two specimens.

HAB. Hawaii. Kilauea, VII. and IX. 1896, nos. 656 and 685: a few with no number, but agreeing with the rest: (Perkins). H. S.

(19) *Nesopeplus testaceipes*, sp. nov.

N. lambiani affinis, sed antennis pedibusque testaceis, fortiter aeneo- sed vix violaceo-micans, pubescentiâ aureâ. Long. corp. 3—3⅖ mm.; lat. corp. 1⅙—1⅓ mm.

This species is like *N. lambianus* in general appearance, but distinguished from it by the characters given above, and by the secondary sexual characters. The male has the notch in the pygidium very broad and shallow, with no distinct tooth on either side; supplementary segment very slightly emarginate, bearing long hairs; last ventral segment with its posterior margin slightly emarginate and fringed with short hairs. The female has the pygidium very long and narrowed, apically rounded and without the conspicuous depression of *N. lambianus*; posterior margin of the last ventral segment feebly bisinuate, the central emargination fringed with short hairs, while the rounded prominence on either side of it bears a tuft of long hairs rising from slightly behind the margin.

Fourteen specimens. There is a single very small male from the Waianae mountains.

Hab. Oahu. Konahuanui Ridge, Koolau Range, Mokuleiia, &c. (nos. 751, 783, 785, 811, 903); Waianae, about 3000 ft. (no. 547): (Perkins). H. S.

(20) *Nesopeplus torvus*, Blackburn.

Brachypeplus torvus Blackburn, Tr. Dublin Soc. iii. 1885, p. 133.

This species was described from a single female taken by Mr Blackburn, by beating flowers, on the Waianae mountains. We have now 27 specimens.

The form is narrow and somewhat elongate, the pubescence conspicuous. The manner of coloration is characteristic. The elytra have a large dark anterior area, and a smaller dark area along the posterior margin. These areas extend the whole width of the elytron, except for the outer lateral margin, which is light usually throughout its length, and which sends a broad light transverse band across the elytron between the dark areas: the light parts are distinctly yellowish, the dark parts almost black. The thorax and abdomen are dark with lighter margins. Thorax rather elongate, not conspicuously broader than long, narrowed in front, with sides explanate towards the hind angles, which are rounded; disc somewhat convex, closely punctured. Length from $2\frac{1}{3}$ mm. (small female) to $3\frac{1}{3}$ mm. (large male).

Male pygidium with a conspicuous notch and a sharp tooth on either side. Supplementary segment with a median depression or very slight emargination. Female pygidium long, narrow, tapering, with very rounded apex.

A single male found at Kawailoa (iv. 1901) differs from the rest in having the notch in the pygidium broad and shallow, while the teeth on either side of it are very short and blunt.

A single female from the Waianae mountains exhibits marked variation. The black colour is greatly reduced; the thorax is uniform reddish-testaceous, and the elytra are testaceous except for two very small areas, one near the scutellum, the other at the posterior margin. The thorax is more conspicuously narrowed towards the front than in other examples.

Hab. Oahu. Waianae, 2000--3000 ft., "found on Kukui tree," "beaten from flowers," &c.; Kaala mts. 2000—3000 ft.; mountains near Honolulu; Waialua coast; Kawailoa: (Perkins). H. S.

(21) *Nesopeplus obscurans*, sp. nov.

♀ Sat elongatus, subtile pubescens, prothorace fusco-testaceo, lateribus testaceis, antennis pedibusque fusco-testaceis, abdomine elytrisque nigricantibus, his testaceo-notatis; prothorace transverso, antrorsum conspicue angustato, basin versus parum angustato, angulis posterioribus argutis; elytris seriatim punctatis. Pygidium longum, apicem versus conspicue attenuatum, ad apicem rotundatum. Long. corp. 3¼ mm.

A single female specimen is distinguished by the curious form of the prothorax and the pygidium. The prothorax is conspicuously transverse, strongly narrowed in front and slightly towards the base, with sides rounded and explanate posteriorly, the disc fairly closely punctured. The specimen does not seem to be clearly allied to any other species.

HAB. Molokai (Perkins). H. S.

(22) *Nesopeplus protinoides*, Sharp.

Brachypeplus protinoides Sharp, Tr. ent. Soc. London, 1879, p. 85.

This form was described from a single female, and with this original type was a male considered by Mr Blackburn to be of the same species. The type was from Maui, but we have now three specimens from Molokai, which, though varying somewhat from the type and from one another, appear inseparable from *N. protinoides*.

The thorax is rather long in proportion to its breadth, slightly narrowed in front, with sides slightly rounded and explanate towards the base, hind angles obtuse but definite, and a very obsolete impression on the posterior part of the disc. The punctures are somewhat distant, but in the female sex rather less so than is the case in *N. latiusculus*; the latter also is a smaller insect, and has the thorax rather more explanate at the sides, and its lateral margins sinuate towards the base. Our specimens of *N. protinoides* have more or less definite testaceous patches on the elytra; the type specimen was of somewhat lighter colour altogether. Length, circa 3¼ mm.

The female pygidium is almost truncate, with rounded angles, and a median apical depression which in our specimens is so marked that the sclerite appears emarginate. The male pygidium has a conspicuous notch, with a prominent tooth on either side, and the margins very slightly serrate; last ventral segment emarginate; supplementary segment slightly emarginate. Mr Blackburn's male specimen has the notch less deep, and differs slightly also in the shape of the prothorax. Description is very unsatisfactory, owing to smallness of the material.

HAB. Maui, Molokai.—Maui; the type ♀ was from flowers of the Koa tree, Haleakala, 5000 ft. (Blackburn).—Molokai, 2 ♀ and 1 ♂, "above 3000 ft.," and "Kahanui" nos. 177 and 153; (Perkins). Blackburn's ♂ bears no record of locality. H. S.

(23) *Nesopeplus nigricans*, sp. nov.

N. protinoides affinis, sed prothoracis lateribus magis conspicue explanatis, elytris magis argute seriatim punctatis, feminae pygidio ad apicem angustiore, ac interdum emarginato. Nigricans, prothoracis lateribus, antennis pedibusque fusco-testaceis, nitidus, leviter aeneo-micans, subtiliter sed parum conspicue pubescens; prothorace transverso, antrorsum angustato, lateribus rotundatis, angulis posterioribus parum argutis, disco obsolete impresso, sat rare sed conspicue punctato. Long. corp. $2\frac{7}{8}$—3 mm.; lat. corp. $1\frac{1}{8}$—$1\frac{1}{4}$ mm.

In this species the prothorax is slightly broader, more rounded at the sides, and more closely punctured in the male than in the female. The punctures on the elytra form definite lines, more definite in the female than in the male; and distinguishing the insect from the original type female of *N. protinoides*, in which the punctures are far apart and the lines much less definite.

The female pygidium is long and tapering, convex longitudinally; apically narrow, rounded, and sometimes with a central depression or emargination. This distinguishes the species from *N. protinoides*. Male pygidium conspicuously emarginate, the tooth on either side sharp; supplementary segment emarginate; last ventral segment with a shallow emargination. Seven specimens.

HAB. Hawaii. Kilauea (VII. 1895, no. 568); and one male from Kona, 3000 ft. X. 1892 (no. 201, Perkins). H. S.

(24) *Nesopeplus cognatus*, sp. nov.

N. koelensis similis, sed prothorace breviore, testaceo, posterius angustato, lateribus ad angulos posteriores haud sinuatis, angulis posterioribus parum obtusis. Long. corp. $2\frac{3}{4}$—3 mm.

A certain number of specimens from the same localities as *N. koelensis* have the prothorax short, somewhat light-coloured, with blunt hind-angles, and with sides slightly rounded and not sinuate posteriorly. These specimens are thereby quite distinct from *N. koelensis*.

The secondary sexual characters appear to offer no important differences from those of *N. koelensis*. In the male the teeth on either side of the notch are somewhat thick and blunt; the supplementary segment is conspicuously emarginate. In the female pygidium the notch is either absent, or, when present, very slight.

Thirty-one specimens.

HAB. Lanai. Same dates and localities as *N. koelensis*, q.v. (Perkins). H. S.

(25) *Nesopeplus* sp.?

In Mr Perkins' collection is a single female specimen which does not appear to fall definitely within the limits of any of our species. It appears to be closely allied to *N. cognatus* but has the thorax proportionately broader and more rounded at the sides, in that respect approaching somewhat to *N. testaceipes*. It resembles *N. cognatus* in size and coloration and in the form of the pygidium. It is from the Waianae mts., Oahu, about 3000 ft. (no. 547, Perkins). H. S.

Group 4.

(26) *Nesopeplus koelensis*, Blackburn.

Brachypeplus koelensis Blackburn, Tr. Dublin Soc. III. 1885, p. 133.

This narrow and convex species was described from a single male obtained by beating flowers at Koele, at 2000 ft. elevation. We now have about 120 specimens. The prothorax is characteristically shaped, being convex, rather long in proportion to its breadth, slightly narrowed in front, with the sides posteriorly sinuate and the hind angles sharp and definite, almost right angles; its punctures are not deep, and decidedly scanty, but vary considerably in number, being distinctly more numerous in the male than in the female; there is often a very slight depression on the posterior part of the disc. On either elytron is a testaceous patch, which varies in extent, being sometimes much obscured. The punctuation on the abdomen is somewhat scanty. The length varies from $2\frac{2}{3}$ to $3\frac{1}{4}$ mm.

The male pygidium has a conspicuous notch with rounded outline, and a sharp prominence on either side; last ventral segment with a wide shallow emargination fringed with short hairs; supplementary segment emarginate with a rounded prominence on either side of the notch. Female pygidium somewhat narrow, at the apex depressed and with a rounded emargination (which is variable, being sometimes very slight); last ventral segment extremely slightly bisinuate.

HAB. Lanai. 2000—3000 ft.; mts. near and behind Koele, above Waipaa, &c., XII. 1893, I. and II. 1894; Halepaakai, VII. 1894 (Perkins). H. S.

(27) *Nesopeplus latiusculus*, sp. nov.

N. koelensis affinis, sed major, et latior; nigricans, antennis pedibusque prothoracisque marginibus fusco-testaceis, elytris plus minusve testaceo-notatis, nitidus, subtiliter pubescens; prothorace sat lato, transverso, disco posterius obsolete impresso, conspicue sed vix crebre punctato, angulis anterioribus rotundatis, lateribus posterius explanatis, parum ad angulos posteriores sinuatis, his argutis fereque rectis; elytris aequalibus;

seriatim punctatis; abdomine vix crebre sed conspicue punctato. Long. corp. $2\frac{2}{3}$—3 mm.; lat. corp. circa $1\frac{1}{3}$ mm.

This species is distinguished from *N. koelensis*, *cognatus*, &c., by its slightly larger size and greater relative breadth. There is considerable variation in colour, also in the degree of closeness of the punctures; the latter being decidedly scanty on the prothorax in some females, as is the case in certain allied forms.

In the male, the emargination of the pygidium is conspicuous, outline of the notch rounded, the tooth on either side somewhat sharp; supplementary segment emarginate; but ventral segment more conspicuously emarginate than in allied forms, the emargination being deeper and not so broad, and having a somewhat rounded outline. Female pygidium variable; sometimes rounded apically and with a distinct central emargination, sometimes more nearly truncate and scarcely emarginate at all.

HAB. Molokai, 4000 ft. and upwards to highest forest, VI.—IX. 1893 (Perkins). H. S.

(28) *Nesopeplus similis*, sp. nov.

N. latiusculi affinis, sed parum angustior, prothorace angustiore, lateribus angulisque anterioribus minus rotundatis; hoc antrorsum angustato, lateribus ad angulos posteriores sinuatis, angulis posterioribus argutis fereque rectis, disco posterius plus minusve impresso; elytris interdum sat obscure seriatim, parum confuse, punctatis. Maris pygidium ad apicem sat latum, haud profunde ac sat late emarginatum. Long. corp. $2\frac{1}{8}$—3 mm.; lat. corp. circa $1\frac{1}{4}$ mm.

This species is very closely allied to *N. latiusculus*, *cognatus*, and *koelensis*. From the two latter it is distinguished by its larger size and greater width; in this respect it comes nearer to the former, from which, however, it is distinguished by the form of the prothorax and the slightly smaller breadth. Moreover it is separated from all three species by the form of the male pygidium, which is apically rather broad, the notch being shallow and the tooth on either side of it but little produced. Male supplementary segment emarginate; last ventral with the emargination broad and shallow as in *N. koelensis*, not deeper and rounded as in *N. latiusculus*. Female pygidium sinuate at the sides, slightly rounded and more or less depressed apically; last ventral segment scarcely bisinuate, almost truncate.

As in the allied species, the punctures on the prothorax are less numerous in the female than in the male.

The colour is extremely variable. Testaceous or yellowish patches are usually present on the elytra, but their extent and outline differ greatly in various specimens. In some the light colour is so extended on the posterior part of the elytra as to give rise to conspicuous specimens of the var. *dimidiatus*, which is so frequent in the genus *Eupetinus*.

Two females from West Maui offer difficulties; one is small and very dark, but appears to be a variety of *N. similis.* The other, from the Jao Valley, in the form of its prothorax somewhat resembles *N. koelensis*; but the sides of the prothorax are less sinuate than is usual in either species, so that it is doubtful to which it belongs. Sixty specimens.

HAB. Maui. Haleakala; Olinda, &c., 5000 ft. and over, III. and IV. 1894 and X. 1896. West Maui; mountains, 4000 ft., IV. 1894 (no. 379); ? Jao Valley, III. 1894 (no. 349, Perkins). H. S.

(29) *Nesopeplus confertus*, sp. nov.

Sat latus, parum nitidus, subtile sed parum conspicue pubescens, fusco-testaceus, prothoracis marginibus pedibusque testaceis, elytris testaceo-notatis; prothorace transverso, ad latera explanato, lateribus conspicue rotundatis, basin versus sinuatis, angulis posterioribus rectis, margine anteriore et posteriore fere recto, disco crebre punctato, posterius obsolete transverse impresso; elytris seriatim punctatis; abdomine sat crebre punctato. Long. corp. $3\frac{1}{2}$ mm.; lat. corp. $1\frac{1}{2}$ mm.

This species is distinguished by the form of the thorax, which is characterised by the rounded sides, slightly sinuate posteriorly. The transverse impression on the posterior part of the disc is variable, being well marked in some specimens and hardly visible in others. The thorax of the female is slightly narrower and less closely punctured than that of the male. The colour is very variable; the thorax is usually lighter, especially at the lateral margins; the elytra much darker, each with two very variable testaceous patches, which may or may not be quite distinct from one another. In some cases these patches are quite absent, and the elytra unicolorous and dark.

The notch in the male pygidium is broad and shallow, the angle on either side forming a moderately prominent and sharp tooth; last ventral segment emarginate; supplementary segment slightly emarginate. Female pygidium not strongly tapering, apically deflexed and slightly rounded. Twelve specimens.

HAB. Molokai, 4000 to over 4500 ft. (Perkins). H. S.

(30) *Nesopeplus puncticollis*, sp. nov.

N. conferti affinis, sed minor, prothorace posterius conspicue angustato, lateribus basin versus minus sinuatis, disco fortius ac rarius punctato, nigricans, sub-aeneomicans, pedibus prothoracisque lateribus fusco-testaceis, elytris testaceo-notatis. Long. corp. circa $3\frac{1}{8}$ mm.

The thorax is rather strongly transverse, conspicuously narrowed towards the base, and with the sides only very slightly sinuate; the punctures on the disc are large and distant. The specimens also differ from *N. confertus* in being very dark, with a strongly contrasting testaceous patch on either elytron, and a distinct brassy reflection;

the transverse impression on the disc is fairly distinct: but it is possible that if we had more material these characters might prove to be variable. Terminal segments as in *N. confertus.* We have only two specimens, both males.

HAB. Molokai, from 4000 to over 4500 ft. (Perkins). H. S.

(31) *Nesopeplus sinuatus*, sp. nov.

Nigricans, pedibus fusco-testaceis, elytris testaceo-notatis, nitidus, leviter aeneo-micans, subtile sed parum conspicue pubescens; prothorace vix transverso, antrorsum angustato, angulis anterioribus vix rotundatis, lateribus ad angulos posteriores parum explanatis conspicueque sinuatis, angulis posterioribus fortiter argutis, disco sat rare punctato posteriusque impresso; elytris seriatim punctatis; abdomine crebre punctato. Long. corp. 3 mm.; lat. corp. 1⅓ mm.

We have only four specimens of this species, in all of which the testaceous patch on either elytron is sharply contrasted with the dark ground colour. The form of the prosternal process shows it to be a true *Nesopeplus*; but the form of the prothorax, though respecting the sinuation of the sides near the hind angles and other characters it is only an exaggeration of what is seen in *N. koelensis*, approaches the condition of certain species of *Nesopetinus*.

In the male, the notch in the pygidium is shallow and broad and the tooth on either side little produced (on this account the species is placed immediately before *N. ater*); supplementary segment emarginate; last ventral segment with a broad emargination. Female pygidium apically depressed and somewhat broad. The single male specimen shows no appreciable difference from the females in the comparative scarcity of the prothoracic punctures.

HAB. Maui. Haleakala, 5000 ft., III. 1894 and X. 1896 (nos. 358 and 661, Perkins). H. S.

(32) *Nesopeplus ater*, sp. nov.

Nigricans, prothoracis lateribus antennarumque basi pedibusque testaceis vel fusco-testaceis, nitidus, sub-aeneo-micans, subtile pubescens; prothorace vix transverso, antrorsum conspicue angustato, basin versus parum angustato lateribusque vix sinuatis, angulis posterioribus fere rectis, disco conspicue sed haud profunde punctato, posterius obsoletius impresso; elytris crebre confuse punctatis, seriebus fere nullis. Long. corp. 3¾ mm.

This form has several decided peculiarities. The punctuation on the elytra is confused; series are visible, but their course is highly irregular. The thorax is rather long in proportion to its breadth; there is a trace of a transverse depression on the disc. The male pygidium is almost truncate, the emargination being reduced to a slight concave curve in the outline, the angles blunt and not produced. Last ventral segment almost truncate, supplementary segment scarcely emarginate. In the two specimens, the posterior, almost vertical, face of the prosternal process is hollowed so that it bears a very shallow depression. This condition has not been observed in any other species. We have two specimens, both males.

HAB. Molokai, 4500 ft. (nos. 157, 181, Perkins). H. S.

NESOPETINUS, gen. nov.

Prosternum post coxas leniter curvatum. Elytra margine externo haud explanato.

The characters by which this genus is distinguished from *Nesopeplus* have been given under that genus.

Nesopetinus includes a variety of forms. The type is a remarkably flat insect. *N. blackburni*, *filipes*, and *concolor* are very distinct forms, and *N. tinctus* connects the genus with *Gonioryctus*.

The species do not lend themselves to any form of tabulation. All that can be done is to indicate several rather vague groups; and even then a number of species remain, which cannot be placed in these, and are also too distinct from one another to form a natural group by themselves.

Group 1. Flattened forms. Thorax distinctly transverse, not strongly convex, closely punctured, lateral margins not (or at most, in no. 2, *N. gonioryctoides*, extremely slightly) sinuate before the hind angles. Male pygidium at most slightly sinuate apically, with very blunt rounded angles. Species 1—10.

Group 2. Smaller forms, usually very distinct from one another. Lateral margins of thorax not sinuate before the hind angles. Apex of male pygidium ranging from shallowly sinuate with very blunt angles, to conspicuously notched with sharp projecting angles. Species 11—21.

Group 3. Colour dark. Thorax longer, narrower, less closely punctured, with hind angles definite and sides slightly sinuate before them. Apex of male pygidium sinuate or shallowly emarginate, the angles not forming sharp teeth. This group may be further divided :—

A. Duller, pubescence distinct. Species 22, 23.

B. Strongly shining, black, devoid of pubescence. Species 24.

Group 4. Female pygidium very narrow, long, tapering, and somewhat convex transversely. Male pygidium notched, the angles forming definite teeth. Species over 4 mm. long. Species 25.

Group 1.

(1) *Nesopetinus tinctus*, Sharp.

Brachypeplus tinctus Sharp, Tr. ent. Soc. London, 1879, p. 83.

Haud latus, parum convexus, subtiliter pubescens, testaceus, viridi-tinctus, elytris interdum laete viridi-aeneis, interdum nigricantibus post scutellum rufo-plagiatis, abdomine medio fusco; capite dense punctato, oculis magnis; prothorace magno, dense punctato, basi fere recte truncata, angulis posterioribus leviter obtusis haud rotundatis. Long. $3\frac{3}{4}$—$4\frac{1}{2}$ mm.

Plate XIV. figs. 13*a* and 13*b*, ♂ last dorsal and ventral plates.

There is a difference in the sculpture of the sexes, the prothoracic punctuation being denser and finer in the female, especially on the anterior part. The male has the pygidium (Pl. XIV. fig. 13*a*) slender at the tip and with a distinct slight emargination there, but the sides of the notch do not project as sharp teeth. The female has the pygidium shorter and a little depressed in the middle at the tip but scarcely notched there.

The pair originally described consisted of two small individuals. Though the species is apparently rare we have a series of 30 specimens collected by Mr Perkins, and exhibiting the variation described above.

The species makes the approach of *Nesopeplus* to *Gonioryctus* very evident.

Hab. Oahu. Mts. near Honolulu, back of Tantalus, &c.; Koolau, high mts. ("from flower of *Astelia*") &c.; Wahiawa; Mokuleeia; leeside of Waianae mts. 3000 ft. (Perkins). D. S.

(2) *Nesopetinus gonioryctoides*, sp. nov.

Haud latus, parum convexus, subtiliter pubescens, fusco-testaceus, elytris viridimicantibus, abdominis prothoracisque marginibus testaceis; thorace (maris) anterius dense omnium subtilissime punctato, angulis posterioribus rectis. Long. corp. 4 mm.

We have only three examples, males, but as its close relation to *N. tinctus* fixes its position unmistakably, I give the species a name. This male differs from the corresponding sex of *N. tinctus*, by the much finer thoracic punctuation, and by the more definite posterior angles. The apex of the pygidium is broader, depressed in the middle with each angle slightly tuberculate.

Hab. Lanai. 2000 and 3000 ft.; one labelled "mts. Koele" (Perkins). D. S.

(3) *Nesopetinus metallescens*, Sharp.

Brachypeplus metallescens Sharp, Tr. ent. Soc. London, 1881, p. 511.

"Latiusculus, haud elongatus, depressus, fuscus, supra aenescens, prothoracis marginibus, antennis pedibusque testaceis, antennarum clava infuscata, subtiliter pubescens, elytris obsolete punctatis, punctis seriatis subtilissimis." Long. 4—$5\frac{1}{2}$ mm.

Plate XIV. fig. 6, ♀.

Mas.; capite thoraceque dense subtiliter punctatis, haud nitidis.

Fem.; capite thoraceque fortiter punctatis sat nitidis.

Var. *α*; rufo-ferruginea, elytris aeneis.

Var. *β*; rufo-ferruginea, elytris vel concoloribus vel ad apicem anguste fuscescentibus.

We have a large series, about 200 specimens, of this species; it varies much in size, and a good deal in the development of the male characters. The varieties mentioned above are not connected to the typical form by intermediates, except that one female is almost entirely testaceous, with the elytra faintly infuscated over a large part, leaving the disc clear yellow. Two female individuals from Kona have the serial punctures more distinct than they are in the other specimens.

The male characters of the pygidium are very slight in this species. The apex is just perceptibly emarginate, but there is no projection of the angles or any trace of tuberculation there; the supplementary segment usually projects a little. In the female the apex of the pygidium is very greatly rounded, being almost straight in the middle.

In addition to the large series above alluded to from Hawaii we have small series of the species from Lanai and from Molokai.

The series from Lanai consists of one male and seven females. These individuals have the serial punctuation of the elytra even more obsolete than it is in the Hawaii form, the colour is darker, the elytra being more indistinctly metallic, and the female pygidium is a little narrower at the tip. These characters are so slight that I do not think it is necessary to name the form. The series of 20 specimens from Molokai is very similar to that from Lanai, except that there is always a larger or smaller patch of rufescent colour extending from the scutellum backwards along the suture of the elytra, and in some specimens the elytra are nearly completely yellow. From Maui there is but one specimen, and it agrees with the Hawaiian typical form.

Hab. Hawaii, Lanai, Molokai, Maui.—Hawaii: Kona, 2000 to over 4000 ft., some recorded as obtained from flowers and other parts of *Freycinetia*, Koa and other trees; above Hilo 1800 ft.; Kaumana, Hilo, 2000 ft.; Olaa (Perkins); Mauna Loa and Mauna Koa up to 5000 ft., from flowers of *Freycinetia* and other plants (Blackburn).—Lanai: 2000—3000 ft. (8 specimens).—Molokai; all from Kahanui, II. (no. 153, 25 specimens). Maui; Haleakala 3000 ft. (one specimen, no. 809, Perkins). D. S.

(4) *Nesopetinus discedens*, Sharp.

Brachypeplus discedens Sharp, Tr. ent. Soc. London, 1881, p. 512.

♀ *Brachypeplus discedens* Sharp, op. cit. 1878, p. 133.

♂ *Brachypeplus puncticeps* Sharp, l. c.

Though extremely close to *N. metallescens* this appears to be really distinct. We have a series of about 88 specimens, and on the whole the individuals are not much more than half the size of *N. metallescens*. The metallic colour of the elytra is only obscure. The thorax is a little straighter at the sides in each sex, so that the explanate part of the side is narrower, and the punctuation and pubescence are rather finer. In the male there is a more definite emargination of the apex of the pygidium. The female of this species has the serial punctuation of the elytra more distinct than it is in the male of its own species, or in the female of *N. metallescens*.

The var. *kauaiensis* of Mr Blackburn is now found to be a distinct species, q. v.

HAB. Oahu. Mts. near Honolulu 2000—3000 ft.; back of Tantalus; Honolulu end of Koolau range; Konahuanui Ridge; Kawailoa gulch (from gulch itself and very far up, no. 41); Waialua (Perkins). D. S.

(5) *Nesopetinus kauaiensis*, Blackburn.

Brachypeplus discedens var. *kauaiensis* Blackburn, Tr. Dublin Soc. III. 1885, p. 137.

♀ Depressus, testaceus, subtilius pubescens, prothorace fortiter transverso, elytris angustiore, antrorsum fortiter angustato, minus dense et fortiter punctato, angulis posterioribus fere rectis, elytris regulariter seriatim punctatis. Long. 3½, lat. 1½ mm.

Although I have seen only females I have no doubt this is quite distinct, and this indeed was Mr Blackburn's opinion though he treated the insect merely as a variety, under the idea that it might be a Kauai representative of *N. discedens*.

HAB. Kauai (Blackburn). D. S.

(6) *Nesopetinus omissus*, sp. nov.

Fusco-rufus, supra metallescens, antennis pedibusque rufis, illarum clava nigricante; capite thoraceque dense punctatis; elytris parum discrete seriatim punctatis. Long. 4½, lat. vix 2 mm.

Mas., capite thoraceque densius punctatis haud nitidis.

Though very closely allied to *N. metallescens*, this is doubtless a distinct species. Though the characters are slight they are sufficient to give *N. omissus* a different facies. The male is readily distinguished from the corresponding sex of *N. metallescens*, by the less broad and flat thorax, the sides of which are only narrowly explanate. In the female the punctuation of the thorax is coarser and less dense than it is in the male, and the explanation of the sides of the thorax is greater. This sex has the thorax more rounded at the sides than the corresponding sex of *N. metallescens*, and consequently the explanation of the sides is less at that spot: the punctuation is rather denser than in the corresponding sex of *N. metallescens*. The eyes are rather smaller in *omissus*. The pygidial characters are much the same in the two species. We have a series of 42 specimens.

HAB. Kauai. Halemanu, 4000 ft.; mts. above Waimea (Perkins). D. S.

(7) *Nesopetinus*, sp.?

A single specimen from Kilauea, Hawaii, departs very decidedly from the long series from Kona; it is a female, and is much more densely punctured; the thorax is rather differently shaped, and the specimen less flattened; the serial punctuation of the elytra much less obliterated.

I doubt whether this can be an extreme variety of *N. metallescens*; in some respects it approaches *N. omissus*.

HAB. Hawaii. Kilauea, July 1895 (Perkins). D. S.

(8) *Nesopetinus varius*, Sharp.

Brachypeplus varius Sharp, Tr. ent. Soc. London, 1881, p. 512.

"Sat latus, depressus, fusco-testaceus, supra subaenescens, subtiliter pubescens, antennarum basi pedibusque testaceis, tarsis fuscis; prothorace fortiter transverso, crebre punctato; elytris subimpressis, seriatim punctatis, interstitiis obsolete punctulatis. Long. 4, lat. 1½ mm.

This is an ally of *N. metallescens*, but the sexual distinctions of sculpture are only slight and the elytra are always variegate; it is decidedly less depressed. The irregularity of surface of the elytra is only slight and is sometimes entirely absent.

The species is apparently rare as we have received only 14 examples.

HAB. Hawaii. Kona; beaten from trunks and branches of various trees, 3000 ft. (no. 243); from flowers of *Freycinetia*, about 2000 ft. (no. 309); above Hilo, 1800—2000 ft.; Kilauea; (Perkins): Mauna Loa, 4000 ft. (Blackburn). D. S.

(9) *Nesopetinus pusillus*, sp. nov.

Fusco-testaceus, antennis pedibusque testaceis; prothorace fortiter transverso, lateribus anguste explanatis, angulis posterioribus fere rectis; elytris obsolete seriatim punctatis. Long. 4, lat. 1½ mm.

Mas., capite thoraceque crebre subtiliter punctatis, haud nitidis.

Fem., thorace parce fortius punctato, nitido.

Closely allied to *N. discedens*, but rather smaller and more feebly formed, without any trace of metallic lustre, the punctuation in the male more obsolete, and the hind angles of the thorax less obtuse. The female has a smaller thorax than the female of *N. discedens*, with the hind angles sharper, and the serial punctuation on the elytra obsolete. The pygidium of the sexes is of almost the same formation as in *N. discedens*.

We have only a small series of five specimens, but there is I think no doubt as to the species being distinct.

HAB. Maui, Haleakala, 2000—3000 ft., 1901 (no. 826, Perkins). D. S.

(10) *Nesopetinus vestitus*, Sharp.

Brachypeplus vestitus Sharp, Tr. ent. Soc. London, 1881, p. 511.

Suboblongus, parum latus, depressus, fusco-niger, capite superne, pronoto elytrisque vix aenescentibus, antennis pedibusque flavis, femoribus fuscescentibus; densius pallide pubescens, opacus. Long. $3\frac{3}{4}$, lat. $1\frac{1}{4}$ mm.

One of the most distinct of the Hawaiian Nitidulidae; recognisable by the regular and considerable development of the pubescence covering the upper surface, which converts the black colour into an uniform grey. It is apparently very rare, Mr Perkins having procured only two specimens.

Hab. Oahu. Konahuanui Ridge, xii. 1900 (no. 783); near Honolulu vi. 1900 (no. 789, Perkins); near Honolulu 1500 ft., on flowers (Blackburn). D. S.

Group 2.

(11) *Nesopetinus* (?) *parallelus*, Blackburn.

Brachypeplus parallelus Blackburn, Tr. Dublin Soc. iii. 1885, p. 135.

We have not received this species, which therefore is still known only by the unique example discovered by Mr Blackburn and now in the British Museum. Mr Blackburn states that it is closely allied to *vestitus*, and this therefore causes me to place it in *Nesopetinus*. So far as I can judge from superficial examination it appears to be a very distinct species, and it reminds me more of the very large, coarsely punctate varieties of *Nesopeplus roridus*—a species not known to Mr Blackburn. I therefore entertain some doubt as to the real affinities of the species.

Hab. Lanai, 2000 ft., obtained by beating flowers (Blackburn). D. S.

(12) *Nesopetinus eremitus*, sp. nov.

♀ Fusco-testaceus, supra aenescens, antennarum basi pedibusque testaceis; prothorace haud fortiter transverso, fortiter punctato, lateribus anterius rotundatis, posterius subrectis, basi recte truncato, angulis posterioribus fere rectis, leviter obtusis: elytris convexiusculis, seriatim punctatis. Long. fere 4 mm., lat. $1\frac{5}{8}$ mm.

We have only one specimen of this species, but it does not come very near to any other. The prosternal process is very unusual in its shape, it is longer than in *N. metallescens*, and appears to project a little more backwards than the pro-epimera; it is only moderately curved upwards; apparently it is this slight curve that gives rise to the appearance of the process projecting beyond the epimera. Antennae short, club large. Thorax a good deal narrower than the elytra, the sides much rounded in front, but nearly straight in front of the hind angles: the base reposes more than usual on the base of the elytra; the disc has an extremely slight depression behind the middle. The elytra have a very vague red patch behind the scutellum: the series of punctures are fine, but distinct, the interstitial punctuation very fine.

HAB. Oahu, Makuleiia, May 1901 (no. 752, Perkins). D. S.

(13) *Nesopetinus celatus*, Sharp.

Brachypeplus celatus Sharp, Tr. Dublin Soc. III. 1885, p. 134.

This species was described from a single male specimen. We have now a very variable series of about 60 specimens. The majority are very dark, with brassy reflection, with the legs, antennae and lateral margins of the prothorax near its hind angles, testaceous. Some specimens are of a dark reddish-testaceous, and some darker ones have the central parts of the elytra of this colour. The punctuation is somewhat coarse on both upper and lower surfaces. The thorax is somewhat long in proportion to its width, narrow, convex, narrowed in front, with the sides explanate only posteriorly (not towards the anterior angles), and the hind angles rounded.

The male pygidium is emarginate, the angles forming short prominences: supplementary segment very slightly rounded, almost truncate. Female pygidium short, with lateral margins slightly sinuate, rather broad and rounded apically; longitudinally somewhat curved and depressed apically. The larger individuals are about 3½ mm. long, while a few are very small, one male being only 2⅞ mm. long.

The form of the thorax (apart from the generic difference in the prosternum) distinguishes this species from *Nesopeplus inauratus*. The thorax is longer proportionally, narrower, less rounded laterally, with larger and less close punctures, more rounded hind angles, and the sides only explanate posteriorly.

HAB. Hawaii, Maui.—Hawaii: Kona, 3000—5000 ft. ("from flowers and dead wood," "on decayed Koa"; many with no particulars); Hualalai.—Maui; 11 specimens, all from West Maui, Jao Valley, no. 349. (Perkins.)

(14) *Nesopetinus apertus*, Sharp.

Brachypeplus apertus Sharp, Tr. Dublin Soc. III. 1885, p. 135.

This was described as a distinct species from a single female found by Mr Blackburn. Mr Perkins has only found one specimen, also a female, and though we can find no very important character distinguishing *apertus* from *celatus*, yet they are probably distinct.

Both specimens are rather long and narrow, with somewhat long elytra. The prothorax is very convex, and in the second specimen conspicuously narrowed in front. The punctures are large, and on the prothorax rather distant. The surface is remarkably shining; the pubescence is very scanty, especially on the prothorax and elytra, though how far this is due to its being rubbed off cannot be told from these two specimens. The two last characters give *apertus* a very distinct appearance from *celatus*, in which the pubescence is conspicuous.

HAB. Hawaii. The original specimen was found at Mauna Loa, 6000 feet (Blackburn); the second one at Kona, 4000 feet (no. 327, Perkins). A third specimen in the British Museum named *apertus* by Mr Blackburn agrees with our two individuals. H. S.

(15) *Nesopetinus scottianus*, sp. nov.

Nigricans, pedibus, antennis, prothoracis lateribus, elytrorumque epipleuris rufo-testaceis; elytris abdomineque interdum plus minusve rufescentibus vel flavescentibus; prothorace fortiter transverso, parum convexo, basi apiceque fere recte truncatis, parallelis, lateribus leniter rotundatis, posterius haud late explanatis; elytris seriebus punctorum discretis. Long. 4 mm., lat. vix 1½ mm.

The amount of yellow colour on the elytra and abdomen varies greatly and sometimes there is none, but the side margins of the thorax are always narrowly yellow above, and on the under-side broadly yellow; the upper surface has frequently a brassy tint.

The species is in some of its varieties very close to *Nesopeplus inauratus* and *Nesopetinus celatus*; it may however be usually easily distinguished by the shape and colour of the thorax from both of those species.

The sexes are a good deal different, and have a different range of variation. The male is usually larger than the female and has the thorax broader, and more densely punctured especially in front, and the head is slightly larger. The male has a well marked notch at the apex of the pygidium, the angles forming short teeth: the female has a short broad pygidium, nearly straight behind. In the female the yellow colour is usually more extensive than it is in the male, and it is only in the female sex that specimens with entirely yellow abdomen occur.

From *Nesopeplus inauratus* the species can be distinguished, without examination of the prosternum, by the thorax being more evenly and gently rounded at the sides, with the margins comparatively less widely explanate behind. Large and well developed individuals of the species are easy to recognise, but depauperated specimens in which the sexual characters are diminished are very difficult to determine.

The nearest ally of *N. scottianus* is *N. celatus*; that species has a thorax longer in proportion to the width, more narrowed in front, the explanation of the sides rather less, and the yellow colour of the sides confined to the basal part.

I have named this species in honour of my colleague, Mr Hugh Scott, who has devoted a great deal of attention to these very difficult insects.

We have a large series of about 120 specimens of this species.

Hab. Hawaii. The great majority from Kilauea; also Kona (some recorded from 4000—5000 ft., some from "flowers and dead wood"); Hualalai, about 5000 ft.; above Hilo 1800 ft.: (Perkins). D. S.

(16) *Nesopetinus* sp.?

A single male specimen from Maui appears not to fall within any of our species. The pygidium is similar to that of *N. scottianus* ♂. The thorax is broad, not strongly convex, narrowed in front and posteriorly, with hind angles much more definite than in *N. scottianus*, so that the sides show an approach to sinuation in front of them: there are two vague impressions on the posterior part of the disc. Length about 4 mm.

Hab. Maui, Olinda, between 3000 and 4000 ft. v. 1896 (no. 629, Perkins). H. S.

(17) *Nesopetinus pallidus*, sp. nov.

Subparallelus, transversim convexus, testaceus, capite thoraceque dense punctatis, hoc lateribus leniter curvatis angulis posterioribus rotundatis; elytris seriatim fortiter punctatis. Long. 3, lat. $1\frac{1}{3}$ mm.

This species on account of its colour, size, and form has a general resemblance to *Nesopeplus vagepictus*, but the male characters are different, and the prosternal process projects well behind the coxae. The thorax is rather short, about as wide as the elytra, not much narrowed in front, but with the hind angles rounded and very indistinct; there is scarcely any explanation of the sides; the punctuation is very dense, especially in front, where also it is finer. The seriate punctures of the elytra are rather large. The legs are short and stout.

The male has a deep, rather narrow notch at the apex of the pygidium, and the angles are sharp.

We have seven specimens.

Hab. Oahu. Waianae mts., 3000 ft. (nos. 10, 547); mts. 2500 ft. (no. 30*); Mokuleiia, no. 752: (Perkins). D. S.

(18) *Nesopetinus concolor*, sp. nov.

Ferrugineus, subtiliter pubescens haud nitidus; capite angusto, oculis convexis; thorace elytris multo angustiore, dense punctato; elytris subtiliter seriatim punctatis. Long. 3, lat. $1\frac{1}{3}$ mm.

One of the most distinct species, and superficially not like anything else. The punctuation of the thorax is dense and fine. The elytra are convex, only very faintly punctured, the interstices a little convex. The male has the hind margin of the pygidium distinctly emarginate but the angles are very blunt: supplementary segment very broad, not tapering, slightly sinuate in the middle of the apical margin. Legs not stout, approaching somewhat to the slender condition found in *N. filipes*. The lobes of the third tarsal joint are however not reduced as they are in *N. filipes* (see Pl. XVI. fig. 7, for comparison with *N. filipes*). Female pygidium short, apically broad and subtruncate with rounded angles. Eight specimens.

This very distinct species has a prosternal process projecting distinctly behind the coxae, and not at all curved upwards at its termination.

HAB. Maui, Haleakala, 5000 ft., v. 1896 (nos. 608, 614, Perkins). D. S.

(19) *Nesopetinus filipes*, sp. nov.

Subdepressus, parcius, pubescens, sat nitidus, pallide testaceus, abdomine nigrofusco, apice testaceo, prosterno mesoternoque fuscescentibus; elytris subseriatim minus subtiliter punctatis. Long. 3½, lat. 1½ mm.

A very peculiar species. Head small, antennae short, pale yellow. Thorax transverse, the sides narrowed behind, with a narrow definite explanation, the hind angles obtuse, the punctuation coarse. Elytra broader than the thorax and with punctuation almost similar. Legs slender; femora projecting distinctly beyond the sides of the body; lobes of tarsal joints, especially those of the third joint, small (see Pl. XVI. fig. 6, for comparison with foot of *N. concolor*). Male pygidium shallowly emarginate or only sinuate apically, the angles rounded and blunt: supplementary segment very characteristic, narrow, very tapering, rounded and without any depression or emargination apically. Female pygidium rather broad at the base, tapering, narrow and rounded apically.

Though very distinct as a species, this is one of the most difficult to classify. The prosternal process is short, and is convex between the coxae, but behind them it is but little directed upwards, and the species is therefore better placed in *Nesopetinus* than in *Nesopeplus*.

We have 15 specimens, mostly males.

HAB. Oahu, VIII. 1900 (no. 785); Konahuanui Ridge, XII. 1900, no. 783; (Perkins). D. S.

(20) *Nesopetinus quadraticollis*, Blackburn.

Brachypeplus quadraticollis Blackburn, Tr. Dublin Soc. III. 1885, p. 135.

Nigricans, supra inauratus, rufo-variegatus, antennis pedibusque rufis; prothorace parum transverso, dense punctato, lateribus subrectis anterius angustatis, basi fere recte truncata angulis posterioribus rectis. Long. 4, lat. 1½ mm.

This appears to be a very distinct species, approximating by the form of the thorax somewhat to the *Nesopetinus blackburni* allies; the pronotum too is applied to the elytra in a somewhat similar manner. The structure of the prosternum agrees with *Nesopetinus scottianus*. The species appears to be very rare; we have six specimens.

The male has an extremely slight notch at the extremity of the last dorsal plate, but the angles do not project at all.

HAB. Hawaii. Mauna Loa, 4000 ft. (Blackburn): Kona, 4000 ft. (nos. 247, 307), Kilauea, nos. 568, 656; (Perkins). D. S.

(21) *Nesopetinus rudis*, sp. nov.

Niger, supra aenescens, antennarum basi pedibusque rufis; thorace minus fortiter transverso, dense punctato, posterius sat distincte biimpresso, angulis posterioribus obtusis; elytris subtiliter seriatim punctatis, interstitiis parce punctatis. Long. fere 4½, lat. 1½ mm.

Allied to *N. quadraticollis*, but quite differently coloured, and the hind angles of the thorax slightly obtuse. The prosternum is thick behind the coxae, so that the process appears to project a good deal. The male characters are but slight, there being a scarcely perceptible emargination of the hind margin and no projection of the angles, which are very broadly rounded. Only one specimen has been found.

HAB. Hawaii, Kona, nearly 5000 ft., 30. VI. 1892 (no. 320, Perkins). D. S.

Group 3 A.

(22) *Nesopetinus perkinsi*, sp. nov.

Sat latus, nigricans, prothoracis abdominisque marginibus pedibusque fusco-testaceis, sub-aeneo-micans, parum nitidus, alutaceus, sat rare ac subtile punctatus, subtile pubescens; prothorace vix transverso, antrorsum angustato, lateribus posterius fortiter sinuatis, angulis posterioribus fortiter argutis, disco transverse impresso; elytris obsolete sulcatis ac impressis, subtile seriatim punctatis. Long. corp. 3—3⅔ mm.; lat. corp. 1¼—1½ mm.

This is a very well-defined species. The entire surface is alutaceous, or covered with a fine reticulate striation, and the punctures are fine and small, and not dense. The prothorax is truncate both anteriorly and posteriorly; the angles are definite, especially the posterior, which are very sharp; the sinuation of the sides is well-marked. In the posterior part of the disc is a marked transverse depression, deeper at its two ends, so that it sometimes looks like two depressions side by side. The punctuation is frequently distinctly closer on the anterior part of the thorax than on the posterior; this is especially noticeable in the males, less so in the females, in which the thoracic punctures are frequently altogether further apart. The furrows on the elytra are not sharply defined, but are somewhat vague longitudinal depressions; there are also wider vague depressions. The specimens vary considerably in both length and breadth.

Male pygidium rather broad, very slightly emarginate, the angle on either side of the emargination being obtuse and rounded, not prolonged into a tooth; the last ventral segment has the emargination so broad and shallow that it is almost truncate; supplementary segment with margin entire, somewhat rounded; end of female pygidium rounded and with a more or less marked median depression. Seventy-one specimens.

A single female, which cannot be separated from the rest, is numbered as coming from Halemanu, Kauai.

Hab. Maui, Haleakala (Olinda, &c.), 4000—5000 ft.; almost all from 5000 ft. or above; some recorded as "beaten from flowers of tree *Lobelia*" (Perkins).

Kauai? (no. 507). H. S.

(23) *Nesopetinus intermedius*, sp. nov.

N. perkinsi affinis, sed minor, nigrior, laevior, haud aeneo-micans, elytris haud sulcatis, pubescentiâ curtiore, prothorace abdomineque rarius ac subtilius punctatis. Niger, prothoracis lateribus abdominisque marginibus pedibusque fusco-testaceis. Long. corp. 3 mm.; lat. corp. 1¼ mm.

There is only a single male specimen of this form. It is very much smaller than most specimens of *N. perkinsi*, and is further distinguished by the rarer punctuation, scantier pubescence, black colour, and absence of the vague elytral furrows and of the dull brassy reflection characteristic of the former species. It is also proportionately narrower, and the surface is very much smoother than that of *N. perkinsi*. There is an obsolete depression on the hind part of the prothorax. Thus in almost all the characters which distinguish it from the former species, it shows a distinct approximation to *N. blackburni*.

Pygidium with a very slight emargination, the angles not forming teeth; supplementary segment not emarginate; last ventral segment truncate.

Hab. Lanai, about 2000 ft. (no. 92, Perkins). H. S.

Group 3 B.

(24) *Nesopetinus blackburni*, Sharp.

Brachypeplus blackburni Sharp, Tr. ent. Soc. London, 1881, p. 516.

This species was described from a single male found on Mauna Loa. We now have 23 specimens. It is at once distinguished by the glabrous, smooth, black and highly shining appearance, and the scantiness of the punctuation. The surface is very finely alutaceous, but the reticulations are so minute that they do not prevent the insect from appearing highly polished. The species is rather narrow, with somewhat elongate antennae. The thorax is subquadrate, with the sides slightly sinuate towards the base, with a somewhat vague transverse impression on the posterior part of the disc; the punctuation is scanty. The punctures in the male are often rather closer near the anterior margin of the thorax, as in *N. perkinsi*, to which this species is in some respects allied. The seriate punctuation on the elytra is scanty and very fine. A few specimens are much lighter in colour, exhibiting lighter areas on the elytra, and being in general of a brown rather than a black colour. The length varies from $2\frac{7}{8}$ to $3\frac{1}{2}$ mm.

The male pygidium is truncate with widely rounded angles, and with or without a very slight median emargination; last ventral segment truncate; supplementary segment usually slightly emarginate. Female pygidium not strongly tapering, rounded at the apex.

Hab. Hawaii—the original type from Mauna Loa, over 4000 ft. (Blackburn): the others from Kilauea; above Hilo, 1800 ft.; Haumana, Hilo, 2000 ft.; Olaa, nos. 558, 568, 697, &c.; (Perkins).

For the Lanai and Maui forms, see below.

Nesopetinus blackburni (?) var. *lanaiensis*, Blackburn.

Brachypeplus (?) var. *lanaiensis* Blackburn, Tr. Dublin Soc. III. 1885, pp. 138 and 229.

I have examined three specimens in the British Museum, obtained from Lanai by Blackburn, and called "(?) var. *lanaiensis*" by him. They are all very small, but there is variation in size among the Hawaii specimens, and it is uncertain whether those from Lanai can be separated as a definite variety.

Nesopetinus blackburni, var. *mauiensis*, var. nov.

Mr Perkins obtained one male specimen from Maui. It is very small, narrow, with conspicuously quadrangular thorax, and with the punctures on the elytra smaller than in the Hawaii specimens, and their seriate arrangement less evident.

Hab. Maui, Haleakala, 5000 ft. (no. 358, Perkins). H. S.

Group 4.

(25) *Nesopetinus blackburnianus*, sp. nov.

Fusco-testaceus, nitidus, aegre aeneo-micans, subtile pubescens, prothorace transverso, lateribus explanatis ac rotundatis, angulis posterioribus obtusis sed argutis, disco crebre vix dense punctato; elytris obscure seriatim punctatis; abdomine haud dense punctato. Long. corp. $4\frac{2}{3}$ mm.; lat. corp. $1\frac{3}{4}$ mm.

This species is clearly distinguished by the character of the terminal segments. The male pygidium has a conspicuous notch, with a well-marked tooth on either side; the supplementary segment is broad and emarginate; the last ventral segment is very remarkable, being deeply and broadly emarginate, with the margin slightly sinuate in the middle line (Pl. XVI. fig. 2). The female pygidium is extraordinarily long, narrow and tapering, rounded at the apex; the last ventral segment has its apex much rounded and arched, and conspicuously fringed with hairs (Pl. XVI. fig. 1).

We have three specimens, one male and two females.

HAB. Maui; the two females from West Maui, 4000 ft. (nos. 368, 379); the male from Haleakala, 5000 ft. no. 369; (Perkins). H. S.

Notopeplus, gen. nov.

Corpus elongatum, parallelum, transversim modice convexum. Prothorax margine laterali dense ciliata. Prosternum processu plano, post coxas magno.

This genus is near to the Australian *Brachypeplus*; but the insect is of a different shape, and is readily distinguished by the large robust prosternal process, which is not in the least arched as it passes over the front coxae. Its nearest ally in the Hawaiian fauna is found in *Orthostolus robustus*, in which the ciliae on the margin of the pronotum are obsolete. In this respect *Notopeplus* is intermediate between *Brachypeplus* and *Orthostolus*, but in other respects this is not the case and I cannot therefore consider *Notopeplus* as exhibiting a certain connection between the Hawaiian and Australian faunas. In fact it is an exceptional form in the former district. D. S.

(1) *Notopeplus reitteri*, Sharp.

Brachypeplus reitteri Sharp, Tr. ent. Soc. London, 1878, p. 134.

Plate XIV. fig. 2, ♂.

The sculpture of the elytra is peculiar among the Hawaiian Nitidulidae: it consists of shallow grooves separated by interstices that are not broader than the grooves; both grooves and interstices are punctate, the former being dull, the latter a little shining. We have 19 specimens.

HAB. Oahu, Hawaii.—Oahu; Kawailoa gulch IV. 1893.—Hawaii; Kilauea, Hilo, Olaa on several occasions. (Perkins.) D. S.

Cillaeopeplus, gen. nov.

Corpus elongatum, parallelum, valde depressum. Prosternum processu post coxas lato, haud recurvato. Tarsi vix dilatati.

This genus is readily distinguished amongst the Hawaiian Nitidulidae by the extremely depressed form, and by the structure of the tarsi, the third joint of which may be said to be without lobes. D. S.

(1) *Cillaeopeplus infimus*, Sharp.

Brachypeplus infimus Sharp, Tr. ent. Soc. London, 1878, p. 135.

"Omnium perdepressus, elongatus parallelus subopacus, sine pubescentia, fuscus vel fusco-testaceus, pedibus dilutioribus; oculis vix ad capitis angulos posteriores rectos attingentibus, haud magnis; prothorace transversim oblongo, crebre subobsolete punctato; elytris profundius striatis, interstitiis seriatim sed vix perspicue punctatis; abdomine subtilissime punctulato. Long. 3½—4½ mm.; lat. 1 mm."

Plate XIV. fig. 5, ♀.

We have six specimens of this species found by Mr Perkins on Oahu, and he also found a good series of 30 specimens on Lanai, and I am not able to distinguish these specimens from those sent me by Mr Blackburn as coming from Oahu.

HAB. Oahu, Lanai.—Oahu; "under the bark of trees on the mountains" (Blackburn); Konahuanui Ridge, and mountains near Honolulu (Perkins).—Lanai; 2000 ft. and over, XII. 1893 and I. 1894 (Perkins). D. S.

(2) *Cillaeopeplus perkinsi*, sp. nov.

Elongatus, parallelus, depressus, haud nitidus; prothorace subtiliter rugoso-punctato; elytris profunde punctato-striatis; femoribus posterioribus margine postico medio angulo acute prominulo. Long. 4—5, lat. 1⅓ mm.

We have only a short series of eight examples of this species, but there is no doubt of its distinctness: indeed the angular prominence on the hind femora distinguishes *C. perkinsi* from all the other Hawaiian Nitidulidae. The striation of the elytra is very deep and regular. Our series includes both sexes; there is but little difference between them, except that the male has a small convex supplementary segment as in *C. infimus.*

HAB. Kauai; all from Makaweli, 2500 ft. II. 1897 (no. 703, Perkins). D. S.

(3) *Cillaeopeplus dubius*, sp. nov.

C. infimi peraffinis; paulo robustior, minus subtiliter sculpturato, elytris striis latioribus et profundioribus. Long. 3½ mm.

A single specimen, of the male sex, found on Hawaii does not quite accord with *C. infimus,* and I think will prove to be another species rather than a variety. It is shining, the thorax is a little narrower in comparison with the length, it is distinctly punctate at the sides, and the peculiar dull patch on the middle contrasts strongly with the sides. The striae on the elytra are so broad and deep that they are grooves, almost broader than the interstices.

HAB. Hawaii, Kilauea, VII. 1895 (no. 691, Perkins). D. S.

CARPOPHILUS Stephens.

Carpophilus Stephens, Ill. Brit. III. 1830, p. 50.

The species of this genus are found in foodstuffs and are carried all over the world: some of them are very variable in size and colour, the varieties being found together indiscriminately.

(1) *Carpophilus hemipterus*, Linnaeus.

Dermestes hemipterus Linnaeus, Syst. Nat. I, 2, p. 565.

Cosmopolitan. Occurs in foodstuffs.

HAB. Oahu, Maui (Blackburn).

(2) *Carpophilus dimidiatus*, Fabricius.

Nitidula dimidiata Fabricius, Ent. Syst. I. p. 261.

HAB. Oahu, Maui, Hawaii, and probably all the islands (Blackburn, Perkins). It is a cosmopolitan species and occurs in abundance in foodstuffs.

(3) *Carpophilus maculatus*, Murray.

Carpophilus maculatus Murray, Mon. Nitidulidae, p. 372.

HAB. Oahu, Maui, Hawaii and probably all the islands (Blackburn, Perkins). Found together with *C. dimidiatus*.

(4) *Carpophilus humeralis*, Fabr.

Nitidula humeralis Fabricius, Syst. El. I. p. 354.

This species is apparently less abundant than the preceding in collections. It has been found in India, Africa, and Mauritius. Mr Perkins' collection contains 13 specimens.

HAB. Oahu. Waianae mts., 3000 ft., beaten from various trees, IV. 1892; Kaala mts., under and in decaying oranges, 1500 ft. III. 1892; Honolulu: (Perkins).

HAPTONCUS Murray.

Haptoncus Murray, Mon. Nitidulidae, 1864, p. 401.

Two species of this genus are found in the Hawaiian islands. One of them—*H. tetragonus*—is common in the East Indies and has doubtless been imported to Hawaii. Although the second has not yet been noticed elsewhere, it also is probably an importation. They are the smallest of our Nitidulidae and have no relation with the members of the precinctive fauna.

(1) *Haptoncus tetragonus*, Murray.

Haptoncus tetragonus Murray, Mon. Nitid. p. 401, pl. xxxiii. f. 7.

When quite immature the black spots may be absent, but the sculpture and shape prevent these examples from being mistaken for the unspotted *H. mundus*.

Hab. Oahu, Lanai, Hawaii, Kauai.—Oahu; Kaala mountains.—Lanai; mts. Koele.—Hawaii; Kona. (Perkins.)—Kauai (Blackburn).

(2) *Haptoncus mundus*, Sharp.

Haptoncus mundus Sharp, Tr. ent. Soc. London, 1878, p. 139.

Hab. Oahu, Hawaii, Kauai.—Oahu (Blackburn); Waialua (Perkins).—Hawaii (Blackburn); above Hilo, 1800 ft. (Perkins).—Kauai (Perkins); a small dark variety recorded by Blackburn from this island (Tr. Dublin Soc. iii. 1885, p. 231). Blackburn records it as taken "on flowers of forest trees on the mountains" and generally 1500—3000 ft. above the sea. Mr Perkins' collection contains eight specimens.

Fam. HISTERIDAE[1].

This family is represented in the Hawaiian Islands by four genera. The species of two of these, *Carcinops* and *Saprinus*, are undoubtedly introduced. With regard to the third genus, *Bacanius*, it is not possible to say whether the species belonging to it are also introduced, or whether they belong to the truly native fauna. The species of the fourth genus, *Acritus*, with one possible exception almost certainly form part of the indigenous fauna. Except in the case of the one point mentioned below, questions relating to them are discussed under the heading of that genus.

Reduction of Wings. Out of the 33 species of *Acritus* belonging to the division of the genus in which there is no visible scutellum, two species (*A. longipes* and its var. *haleakalae*, and *A. subalatus*) have been shown to have the wings greatly reduced. Smallness of material has prevented a thorough investigation of this phenomenon, and although the reduction has been proved in five specimens altogether, in only one specimen has it been possible to obtain the reduced wing in a perfect condition. Of the other 31 species, 14 have been shown to have the wings not reduced; but here again smallness of material and the fact that it is almost impossible to study the wings without entirely removing one or both elytra have been a hindrance, and in only one case (*A. subbasalis*, q. v.) has an examination of more than one specimen been possible. In the remaining 17 species of this section of *Acritus*, in the one species belonging to the other section, and in the other genera, the wings have not been seen.

In the descriptions of the *Bacanii* and *Acriti*, it is in each case mentioned whether the wings have been examined or not. The sentence "wings not reduced" indicates, in the case of each species, that one specimen has been examined, except in the case of *A. subbasalis*, where (as is stated) five were found to have full-sized wings.

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[1] By Hugh Scott.

Passing to a consideration of the wing-reduction more in detail. In the original type specimen of *A. longipes* the wings have been found to be greatly reduced, but their exact nature could not be determined; the same was found to be the case in one of the two specimens of *A. longipes* var. *haleakalae*. Two specimens of *A. subalatus* from Molokai are in the same case. The type of *A. subalatus* (from Lanai) is the only one in which the reduced wing has been seen undamaged. The five specimens examined for this character are thus all accounted for.

The wing of the type specimen of *A. subalatus* is shown in Pl. XV. fig. 26: the line *a* at the side represents the length of the elytron to the same scale. It is thus seen that the wing is only about $\frac{3}{5}$ the length of the elytron. Fig. 6, drawn on a very much smaller scale, shows the proportionate lengths of wing to elytron in one of the species with full-sized wings. *A. kauaiensis*; the wing is a little over twice the length of the elytron. The wing of *A. subalatus* is of course not folded; the curious shape of it in the anal area, as shown in the figure, is almost certainly due to a doubling under of the anal part; the real shape of the wing in this region being roughly indicated by the dotted line. When the elytra are closed, the specimens have nothing in their appearance which would lead one to suppose that their wings are reduced; the elytra are just as convex as those of species with full-sized wings. Also, the space under the elytra, in which the species with full-sized wings fold and pack those organs, seems to be proportionately just as large in the reduced-winged species. The elytra of specimens with reduced wings are in no case soldered together.

It appears that reduction of wings in the Histeridae is a subject which has not previously been investigated. Since, therefore, the condition of these organs in Histeridae from other parts of the world is not known, no importance can be attached to the fact that these species with reduced wings are insular species.

NOTE. **Descriptive terms.** In all the Hawaiian species of *Bacanius* and *Acritus*. the prosternum has two more or less raised ridges on either side. I have followed the usual custom in terming these "striae." The part of the prosternum between the inner pair (Pl. XV. fig. 23, *a*) is termed the "keel." In Latin diagnoses the term "prosternum" refers almost exclusively to this keel-area. When prosternal striae are mentioned, only the inner pair (fig. 23, *a*) are meant; the outer pair (fig. 23, *b*), on the sloping sides of the prosternum, are not made use of for systematic purposes. The marginal line of the mesosternum, and the diverging lines on the metasternum continuous therewith, and also the diverging lines on the first abdominal segment, are also called "striae": they have almost always the nature of sunk grooves.

Measurements. The length measurements in no case include the length of the head.

The *Acriti* and some other small forms have been studied very largely under a Ross compound microscope with a $\frac{2}{3}$ inch objective and a no. 2 eyepiece. Without some such power the characters cannot properly be made out.

CARCINOPS Marseul.

Carcinops Marseul, Ann. Soc. ent. France, 1855, p. 83.

(1) *Carcinops quatuordecimstriata*, Stephens.

Dendrophilus quatuordecimstriatus Stephens. Ill. Brit. v. 1832, p. 412; Sharp, Tr. Dublin Soc. III. 1885, p. 225.

HAB. Cosmopolitan. Introduced into Hawaiian Archipelago; Oahu (Blackburn, Perkins).

SAPRINUS Erichson.

Saprinus Erichson, Jahrb. 1834, p. 172.

(1) *Saprinus lugens* Erichson.

Saprinus lugens Erichson, Jahrb. 1834, p. 181; Marseul, Ann. Soc. ent. France, 1855, p. 395 and pl. 16, fig. 34; Sharp, Tr. Dublin Soc. III. 1885, p. 225.

HAB. Mexico, California, Vancouver. Introduced into Hawaiian Archipelago: in decaying carcases all over the islands (Blackburn, Perkins).

(2) *Saprinus oregonensis* Leconte.

Saprinus oregonensis Leconte, Mon. p. 45 and pl. 5, fig. 12; Sharp, loc. cit.

HAB. North America. Introduced into Hawaiian Is. (Blackburn, Perkins). "Generally found in company with *S. lugens*" (Tr. Dublin Soc., loc. cit.).

BACANIUS Leconte.

Bacanius Leconte, P. Ac. Philad. VI. 1853, p. 291.

In this genus the scutellum is invisible, and the hind tarsi have five joints.

(1) *Bacanius atomarius* Sharp.

Bacanius atomarius Sharp, Tr. Dublin Soc. III. 1885, p. 128.

Plate XV. fig. 37, pro- and mesosterna, &c.

This species is known only from specimens found by Mr Blackburn, of which I have examined the type and one other. Distinguished at once from any known Hawaiian

Acritus by the broadness of the front and middle tibiae, the former (Pl. XV. fig. 35) especially being very broad. The original diagnosis is as follows:—

"Breviter ovalis, convexus, ferrugineus, sat crebre et fortiter punctatus; mesosterno breve, punctato. Long. 1 mm."

Head microscopically rugulose with fairly numerous punctures, fronto-clypeal suture not distinct. Prothorax with numerous moderately strong punctures, with a slightly arcuate median transverse chain of punctures before the base, the area between this and the base also punctured; the base forms a rather prominent median angle. Punctures on the elytra strong and not very close on the disc, smaller and dense apically. Characteristic of both thorax and elytra is the presence of punctures of more than one size, very minute ones lying in the interspaces between the larger ones. Pygidium much deflexed, narrow, closely punctured. Prosternum strongly punctured, about $1\frac{2}{3}$ times as long as the breadth at the base of the keel; the striae on either side of the latter are only present in the basal portion; anteriorly the keel is not marked off from the side parts of the prosternum, and only the outer striae are present. Meso-metasternal suture impunctate, almost straight; immediately before it, on the mesosternum, a slightly arcuate chain of coarse punctures. Metasternum coarsely punctate at the sides, punctures obsolete in the middle. First abdominal segment coarsely punctured. Diverging striae curved up behind the coxae. Wings not examined.

HAB. Oahu, near Honolulu (Blackburn).

(2) *Bacanius confusus*, Blackburn.

Bacanius confusus Blackburn, Tr. Dublin Soc. III. 1885, p. 129.

Known only from a single specimen obtained by Mr Blackburn, which I have examined. Smaller than *B. atomarius*, and less strongly punctured. On the median part of the elytra there are fine striae or wrinkles curving in towards the suture; on the apical part the punctures are stronger. There is no definite series of punctures, or any special sculpture, at the base of the thorax. Wings not examined.

HAB. Oahu (Blackburn).

ACRITUS Leconte.

Acritus Leconte, P. Ac. Philad. VI. 1853, p. 288; Horn, P. Amer. Phil. Soc. XIII. 1873, p. 352.

Aeletes Horn, T. c. p. 356.

Acritus Lewis, Biol. Centrali-Americana, Coleoptera (II.), p. 238, 1888.

This genus is characterised by the presence of only four joints in the hind tarsi, the long basal joint appearing as if formed by the fusion of two joints. Horn (l.c.) distinguished between those *Acriti* with a visible scutellum, and those with no visible scutellum, forming the genus *Aeletes* for the latter. *Aeletes* was again merged in *Acritus* by Lewis (l.c.), on the ground that the distinction between them is insufficient. This arrangement is retained here.

The known Hawaiian members of the genus are obviously divisible into two very unequal groups; one consisting of but a single species, *A. insularis*, with a distinct scutellum, the other consisting of 33 species in which absolutely no scutellum is visible, in any light or position, even under high powers of the compound microscope. *A. insularis* is moreover sharply marked off from its congeners by several other characters; chiefly by the very definite basal chain of punctures on the thorax, arcuate in the middle, and by the definite row of coarse punctures along the meso-metasternal suture; these two characters are not found in any other known Hawaiian *Acriti*, though they are present in various *Acriti* from other lands. Indeed the meso-metasternal row of punctures is, according to the descriptions of de Marseul and others, present in several *Acriti* (some of which are N. American) which in other respects seem to be very closely allied to the Hawaiian *Acriti* without visible scutellum. Altogether *A. insularis* is so very unrelated to its Hawaiian congeners, that one almost suspects it of being a recently introduced form: this however is only a matter of conjecture.

Leaving *A. insularis* out of account, and considering only the forms without visible scutellum, there is every reason to believe that they are part of the truly indigenous fauna of the islands. They are almost all from mountain localities at elevations of from 2000 to 6000 feet; many are recorded from elevations of 3000, 4000 and 5000 feet. They are from the indigenous forests, where they are found, as I am informed by Mr Perkins, always in dead wood of some kind, either just under the bark, or deeper in the rotten wood.

These Hawaiian *Acriti* (and indeed the *Acriti* of all the world) are at present too imperfectly known for any statement to be made with certainty, as to whether or not they are precinctive, that is, confined to the Hawaiian Islands. Examination of a number of *Acriti* in the British Museum, from Europe, various parts of Asia, Australia and New Zealand, has not revealed any closely related to those in question. The descriptions of many other species show plainly that they too are quite different from the Hawaiian forms. Descriptions of yet other species do not allow of a decision being formed as to whether those species are like the Hawaiian *Acriti* or not. It is to be regretted that in many cases no statement is made as to whether a scutellum is visible or not. If any known species do come very close to their Hawaiian congeners, it appears that such are North American forms. Certain specimens found by Blackburn near Honolulu were considered to belong to the Californian *A. basalis* Leconte. Some of these have had to be removed to other species; as to the remainder, I have not seen *A. basalis* Leconte, and cannot be certain whether they are of that species.

The material is not large enough to allow of much being said about the distribution within the Archipelago. The majority of species are so far known each only from one island: this majority includes 10 of the most distinct forms: and of eight of these we have series of over six specimens. The 18 specimens of the large and distinct *A. kauaiensis*, and the 17 specimens of the well-marked *A. punctatus*, are all from Kauai. On the other hand, some species, such as *A. minor*, appear to be undoubtedly found in more than one island. In some cases, all the specimens of a fair-sized series are from a single locality, or a very few localities. These obscure forms have not at present been at all exhaustively collected.

As stated above, the species do not appear very closely allied to those of other parts of the world; while the various groups of them have each, with scarcely an exception, close inter-relations among themselves. In one or two cases, certain forms seem to be represented by two or more closely allied species in different islands: thus *A. punctatus* (known only from Kauai) is close to *A. kukuiae* (Oahu), and *A. sculptus* (Molokai) is represented in Kauai by *A. makaweliae*. In respect of a single character (the nature of the diverging ventral striae), *A. subrotundus* stands away from all other species without visible scutellum; agreeing in that one respect with *A. insularis*. On the whole it appears probable that most, at any rate, are precinctive. Should this prove to be so, and should some species prove to be confined to single islands, these phenomena will only be in accordance with what is known of the general nature of the Hawaiian fauna.

No general statements as to the variability can be made from a study of the present material. The specimens of the larger series show very little variation, except in some cases clear differences which are very probably sexual (see under *A. makaweliae*, and footnote p. 522). It is possible that a few new species described from single individuals will prove to be only varieties of other species, but the great majority are quite distinct from one another.

Certain structural features of these Hawaiian species must be noticed. De Marseul in giving the characters of the genus writes[1]: "Front sans strie ni dépression transversale qui le distingue de l'épistome." In a few of the Hawaiian species, however, a distinct transverse suture just in front of the antennae is present: in most there is no trace of it: when present, it is mentioned in each case. Lower surface of the head behind the labium with only a single median suture. The prothorax has always a very fine marginal stria along the lateral and front borders; as this is hard to see, and offers no distinguishing characters, no other mention is made of it. The stria along the deflexed ventral marginal part of every elytron also appears to offer no characters. One or two oblique striae may be present near the shoulder of the elytron; they may be distinct furrows, vague, almost imperceptible, often quite absent; very variable in the specimens of a single species, and of no use in distinguishing species. Whether they are present or not, the sculpture in the part of the elytron near the shoulder is nearly always different to that on the rest of the disc (Pl. XV. fig. 7). The area at the middle of the base of the pronotum is very often differently sculptured to the rest; slightly impressed and bounded in front by a transverse slightly arcuate line. But no species except *A. insularis* has the basal chain of strong, very clear-cut punctures. The characters chiefly used in distinguishing species are, form and proportions of prosternum, form of mesosternum, presence or absence of the special sculpture at the base of the pronotum, and general sculpture and punctuation.

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[1] Ann. Soc. ent. France (3) iv. 1856, p. 596.

In all species the dorsal surface of the neck has a fine transverse, slightly reticulate striation (shown only in Pl. XV. figs. 3, 18), which may act against the front of the pronotum as a stridulating organ.

An attempt to tabulate all the species has proved unsuccessful; only the following divisions can be made:—

Section I. Scutellum visible, distinct ....no. 1.

Section II. Scutellum invisible.

II A. Diverging striae on metasternum and first abdominal segment curved up behind coxae ....nos. 2—33.

II B. Diverging striae ending blindly, not curved up behind coxae ...no. 34.

The 32 species of division **II A** can only be placed in the following rough groups, which it is hoped may possibly be of some assistance:—

Group 1. Forms at least 1¼ mm. long, very distinctly punctured (or rugose, in *A. ornatus*, no. 2), with no impressed area at base of thorax, first abdominal segment as strongly punctured as metasternum. Metasternum not impressed...........nos. 2—9.

Group 2. Strongly sculptured forms, with larger punctures (but no impressed area) at the base of the thorax; with metasternum strongly punctured but first abdominal segment almost impunctate. Mesosternum with no definite impression ...... nos. 10 and 11.

Group 3. Depressed, with punctures more or less aciculate, with impressed area at base of thorax bounded in front by a transverse line [except in no. 12, *A. waianae*, where it is absent or indefinite]. Mesosternum impressed......................nos. 12—17.

Group 4. Forms in which the elytra are punctured only over a small area near the suture; with impressed area at base of thorax; mesosternum impressed ...... nos. 18 and 19.

Group 5. With distinct, sometimes aciculate punctures. Keel of prosternum long and narrow, 2½ to 3 times as long as broad. Mesosternum impressed. [No. 21, *A. monticola*, has no impressed area at base of thorax. No. 20, *A. similis*, has a slight one, and is in many ways related to Groups 3 and 4] ....nos. 20 and 21.

Group 6. Broad forms, very finely punctured, with definite transverse impressed line before base of thorax. Keel of prosternum $2\frac{1}{2}$ to $3\frac{1}{2}$ times as long as broad. Mesosternum impressed..nos. 22 and 23.

Group 7. Smooth, with punctuation very shallow and vague, or quite absent. Basal thoracic impression absent or slight. Keel of prosternum about twice as long as broad. Mesosternum impressed.................................. ....nos. 24—28.

Group 8. Very small, at most 1 mm. long, smooth. No impressed area at base of thorax. Prosternum short, keel usually less than $1\frac{1}{2}$ times as long as broad. [Mesosternum impressed or not so.]

8 a. Elytra marked with fine curved scratches ....no. 29.

8 b. Almost or quite impunctate and without scratches ....nos. 30—33.

Section I. Scutellum visible.

(1) *Acritus insularis*, Sharp.

Acritus insularis Sharp, Tr. Dublin Soc. III. 1885, p. 129.

Plate XV. figs. 35, 36.

I have examined the type, found by Mr Blackburn, and one specimen found by Mr Perkins.

The species is distinguished from all other known Hawaiian members of the genus by the presence of a distinct triangular scutellum. Also the head bears numerous punctures, almost as strong as those on the rest of the body (there is no transverse suture before the antennae); there is a marked chain of punctures along the base of the thorax, arcuate in the middle, the surface of the thorax between the arcuation and the scutellum being impunctate. The remainder of the thorax, and the elytra, are evenly and fairly strongly punctured; the propygidium and pygidium are numerously and almost as strongly punctured as the rest.

On the underside the distinguishing character lies in the presence of a row of coarse, somewhat elongate, punctures along the meso-metasternal suture. Keel of the prosternum oblong, about $1\frac{2}{3}$ times as long as broad in the middle, punctured, with surface slightly convex, striae slightly sinuate; metasternum strongly punctured at the sides, punctures obsolete in the middle; first abdominal segment strongly punctured. The striae on metasternum and first abdominal segment diverge considerably, but end blindly, not curving up behind the coxae. The third ventral segment extends on to the dorsal surface, appearing as a piece on either side in front of the propygidium. Colour blackish-piceous, legs and antennae brown. Length 1 mm. Wings not examined.

HAB. Oahu. Near Honolulu (Blackburn); mountains near Honolulu (no. 758, Perkins).

Section II. Scutellum invisible.

(2) *Acritus minor*, sp. nov.

Piceo-testaceus, nitidus, oblongo-ovalis; capite parce punctato, suturâ transversâ ante antennis distinctâ; prothorace crebre punctato; elytris crebre (et obsolete aciculatim) punctatis, ad humeros et ad apices laevigatis; prosterno longo; in medio conspicue elevato, striis antice late divergentibus; mesosterno vage impresso, hoc et metasterno et segmento abdominis primo crebre sed haud dense punctatis. Long. 1¼ mm.

The distinctive feature in the two Kauai specimens from which the description is taken lies in the form of the keel of the prosternum. This is more than twice as long as the breadth between the striae at the base; the base is rather narrow, the striae diverge very widely in front, and the surface between them in the front part is raised into a conspicuous elevation or blunt tubercle (Pl. XV. figs. 1 and 2). The prothorax has numerous punctures; in one specimen they are larger and a little rugulose in the median basal area, forming an approach to a definite basal sculpture. Elytra numerously punctured, becoming smooth and impunctate towards the apices and towards the shoulders; their surface between the punctures shows vague wrinkles and inequalities. Punctures on the mesosternum, &c., well-marked but not very close.

There is a specimen from Hawaii with the elevation on the prosternum, which cannot be separated from the Kauai specimens. Also two other specimens, one from Kauai and one from Hawaii, agreeing in all points with *A. minor* except in the form of the prosternum. The keel lacks the elevation, and the striae, though divergent in front, are less widely divergent. The relation of these to the typical specimens must remain uncertain. I have not been able to see the wings in any specimens except one of these doubtful examples; in which they are not reduced.

Hab. Kauai, Hawaii.—Kauai: Halemanu, 4000 ft.; high plateau (nos. 504, 631, 682).—Hawaii: Kona, 3000 ft.—(Perkins.)

(3) *Acritus ornatus*, sp. nov.

Oblongo-ovalis, convexus, nitidus, piceus, pedibus piceo-ferrugineis; capite laevi, parce et subtiliter punctato, suturâ transversâ ante antennis distinctâ; prothorace fortiter ac dense aciculatim punctato; elytris dense strigoso-rugosis; prosterno striis antice late divergentibus, in medio antice parum elevato; mesosterno vix impresso, hoc et metasterno crebre punctatis. Long. 1½ mm.

Plate XV. fig. 3.

This species is by the form of its prosternum closely allied to *A. minor*, but very much larger, and in its dorsal sculpture quite distinct from *A. minor* or any other Hawaiian *Acritus*. The keel of the prosternum is about twice as long as the breadth in its narrowest part; the striae curve outwards so widely in front, that the front margin is nearly twice as wide as the base; the surface in this wide part is elevated in the same manner as in *A. minor*, but to a much less extent.

The prothorax bears very numerous, strong, rather short aciculate punctures, the more anterior directed obliquely towards the middle line. The elytra have strong, very close, rugae, directed longitudinally on the disc, those near the suture a little obliquely towards the suture, those at the sides obliquely outwards; in the humeral area somewhat obsolete. First ventral segment much less numerously punctured than the metasternum. Two specimens, the second specimen much smaller and in a very bad state of preservation. Wings not examined.

HAB. Kauai; from the high plateau, VIII. 1896 (no. 682, Perkins).

(4) *Acritus facilis*, Sharp.

Aeletes facilis Sharp, Tr. Dublin Soc. III. 1885, p. 130.

I have examined the type and five other specimens collected by Mr Blackburn. We have received only two specimens in Mr Perkins' collection. The original diagnosis is as follows:—"Oblongo-ovalis, convexus, piceus, nitidus, crebre punctulatus, punctis ad elytrorum apicem densis et strigosis. Long. 1⅓ mm."

Plate XV. fig. 4.

This species is very closely allied to *A. kauaiensis*, being chiefly distinguished by its much smaller size and the absence of a distinct transverse suture before the antennae. Like the preceding species, it is smooth and shining, with numerous punctures, varying somewhat in size, but not very large or close, rather shallower on the thorax than in *A. kauaiensis*: the ends of the elytra are rugose: oblique elytral striae not present: the striae at the sides of the prosternal keel diverge gradually from the base forwards: mesosternum not at all impressed, meso-metasternal suture very faintly marked; meso- and metasterna and first abdominal segment with numerous rather strong punctures, becoming obsolete over the middle of the metasternum. Wings not examined.

HAB. Oahu: near Honolulu (Blackburn); mts. near Honolulu, 1900 (no. 758, Perkins).

Acritus facilis, var. *hawaiiensis*, var. nov.

Minor, capite suturâ distinctâ transversâ ante antennis: long. 1¼ mm.

There are two distinctly smaller, rather narrow specimens, each with a distinct line across the head just in front of the antennae, but in all other respects agreeing with the Oahu form.

HAB. Hawaii. Kona, over 4000 ft. (no. 231); Kilauea, no. 656 (Perkins).

(5) *Acritus kauaiensis*, sp. nov.

Oblongo-ovalis, nitidus, piceus, antennis pedibusque fusco-testaceis; capite suturâ transversâ ante antennis distinctâ, his parce punctatis; prothorace elytrisque crebre punctatis, his ad apicem longitudinaliter rugosis; propygidio ac pygidio crebre subtiliter punctatis; prosterno sat longo, striis per totam longitudinem leviter divergentibus; mesosterno nullo modo impresso, crebre punctato; metasterno crebre ac sat fortiter, in medio obsolete, punctato. Long. corp. 1¾ mm.

This species is by far the largest of the Hawaiian members of the genus, and very distinct. The surface between the punctures is smooth and shining. A distinct transverse suture just in front of the antennae is present. Punctures on the thorax numerous and evenly distributed, not very large or very close: the extreme base of the thorax also is punctuated, but there is no special basal sculpture such as is found in many congeners. Punctures on the elytra slightly stronger than on the thorax, towards the apex drawn out into rugosities. Oblique elytral striae not present. Keel of the prosternum (Pl. XV. fig. 5) about twice as long as broad at the base, slightly convex, the striae diverging gradually from the base throughout their length. Mesosternum without any impression, its surface quite continuous with that of the metasternum; its marginal stria continuous, but shallower in front in the middle; meso-metasternal suture very faint. Meso- and metasterna and first abdominal segment with numerous rather strong punctures, except in the middle part of the metasternum, where they become very small. Wings not reduced (Pl. XV. fig. 6).

Eighteen specimens. One, probably immature, decidedly smaller and lighter coloured than the rest.

Hab. Kauai. Most from above Waimea, 4000 ft. &c. (no. 273); some from Koholuamano, and some labelled "high plateau," nos. 526, 682; (Perkins).

(6) *Acritus molokaiae*, sp. nov.

Oblongo-ovalis, ferrugineo-piceus, aegre nitidus lineâ transversâ ante antennis vix distinctâ; prothorace elytrisque crebre ac sat subtiliter punctatis, his ad apicem subtiliter rugosis; pygidio crebre subtiliter punctato; prosterno sat longo, subtiliter punctato, striis antice conspicue divergentibus; mesosterno crebre punctato. Long. corp. 1½ mm.

A single specimen, of red-brown colour, darker along base of thorax and elytral suture. Under a very high power the transverse suture in front of the antennae is scarcely visible, while in *A. punctatus*, *kukuiae* and *mauiae* it is quite distinct even under a lower power. The species is further distinguished by the fineness of the punctures evenly distributed on prothorax and elytra, and the form of the keel of the prosternum. This is nearly twice as long as the breadth at the base, and the striae diverge in front so that the width of the front margin nearly equals the length of the keel. As in the three preceding species, the prosternum is distinctly punctured, an uncommon character in Hawaiian *Acriti*. The metasternal punctures become very small over a little area in the middle; meso-metasternal suture very faint.

This species forms in many respects a transition between *A. kauaiensis* and the general type exemplified by *A. mauiae, kukuiae* and *punctatus*. It is much like *A. kauaiensis*, having the apices of the elytra a little rugose; but is distinguished by smaller size, microscopically rugulose surface, and absence of fronto-clypeal suture. Wings not examined.

HAB. Molokai; 4500 ft. 23. IX. 1893 (no. 161, Perkins).

(7) *Acritus mauiae*, sp. nov.

Oblongo-ovalis, piceus, nitidus; prothorace elytrisque crebre, aequaliter, ac fortiter punctatis, his ad apices parum rugosis; pygidio sat fortiter punctato; prosterno eo *A. punctati* parum angustiore, striis antice magis divergentibus; mesosterno metasterno et abdominis segmento primo crebre ac fortiter punctatis. Long. 1½ mm.

We have only two specimens. The species is closely allied to *A. punctatus* and *A. kukuiae*, but clearly distinguished by its punctuation and the form of the prosternum.

The prothorax is more strongly punctured than in either *A. punctatus* or *A. kukuiae*. The elytral punctuation is stronger than that of *A. kukuiae*, not so close and strong as that of *A. punctatus*; the humeral area where the punctuation becomes rather obsolete is not specially marked. Pygidium more strongly punctured than that of *A. punctatus*. In the two preceding species the punctuation of the thorax is very much finer and shallower than that of the elytra; in this species there is much less difference, the thorax and elytra being very much alike in this respect. Prosternum with the keel finely punctured, slightly convex, less nearly oblong, being slightly narrower with striae more widely divergent in front. The punctures of the metasternum become much smaller in the middle, but there is not (as in the two preceding species) a definite area where the punctuation is obsolete. One specimen has two vague oblique striae near the shoulder of either elytron. Transverse suture present on the head just before the antennae. Wings not reduced.

HAB. Maui; Haleakala, between 4000 and 5000 ft. V. 1896 (nos. 599, 601, Perkins).

(8) *Acritus kukuiae*, sp. nov.

Oblongo-ovalis, *A. punctato* affinis, sed elytris minus fortiter punctatis, punctis ad humeros sat late obsoletis. Subtus fortiter sed rarius punctatus. Long. 1½ mm.

We have three specimens. The species agrees with *A. punctatus* in all respects except the following. The surface is rather smoother and more shining; the elytral punctures are smaller and the interspaces larger; there is a considerable area towards the shoulder of each elytron where the punctuation becomes obsolete (Pl. XV. fig. 7). (In many species the sculpture in the humeral area differs from that of the rest of the elytra, being often obsolete: in this species the difference is exaggerated, so that a marked smoother area is apparent towards the shoulder.) Beneath, the punctures are large, but much less close than in *A. punctatus*. The head has a transverse suture before the antennae. Wings not reduced.

HAB. Oahu; Waianae mts. IV. 1892, from Kukui wood (no. 7, Perkins).

(9) *Acritus punctatus*, sp. nov.

Ovalis, haud fortiter nitidus, piceo-niger, antennis pedibusque fusco-testaceis; prothorace crebre punctato; elytris fortiter ac dense punctatis, ad apices parum rugosis; pygidio subtiliter punctato; prosterno oblongo, striis subparallelis, antice parum divergentibus; mesosterno haud impresso; hoc et metasterno et segmento abdominis primo fortiter ac sat dense punctatis. Long. corp. $1\frac{1}{2}$ mm.

Plate XV. figs. 8, 9.

This species has a peculiar slightly dull appearance, partly due to closeness of the punctures, partly to the surface between them being microscopically rugulose or alutaceous. Head with some very fine punctures, the transverse suture just in front of the antennae distinct. Prothorax with numerous punctures; a series of punctures along the extreme base, but no special sculpture or impression before the base. Elytra with large close punctures, extending right to the apices, where they are somewhat drawn out into rugosities. Oblique striae near the shoulder sometimes slightly marked. Pygidium and propygidium with very fine, rather obsolete punctures. Prosternum with the keel slightly convex, finely punctured, oblong, about $1\frac{3}{4}$ times as long as its breadth in the median portion, the striae nearly parallel, only slightly divergent in front. Mesosternum, metasternum and first abdominal segment strongly punctured, the punctures becoming very small and obsolete over only a small area in the middle of the metasternum: meso-metasternal suture very faintly marked. Wings not reduced. Seventeen specimens.

HAB. Kauai. Most from Makaweli, 2500 ft. (nos. 668, 703); some from above Waimea, no. 273. (Perkins.)

(10) *Acritus sculptus*, sp. nov.

Oblongo-ovalis, piceus, nitidus; prothorace subtiliter, et interdum longitudinaliter aciculatim, punctato, basin versus in medio sat fortiter punctato; elytris disco fortissime punctato, ad apices laevigatis et subtiliter aciculatim punctatis; pygidio fere impunctato; prosterno lato, suboblongo, transversim convexo, impunctato; mesosterno vage impresso, hoc et metasterno fortius punctatis, segmento primo abdominis fere impunctato. Long. circa $1\frac{1}{4}$ mm.

Plate XV. figs. 10, 11.

This species is distinguished by its remarkable sculpture. The prothorax has before the base a median group of rather large simple punctures, and there are smaller punctures extending along the base towards, but not to, the hind angles; the rest of the surface has very fine, rather rare, punctures, which in some specimens are drawn out into marked longitudinal scratches. The disc of the elytra nearer the base has numerous big strong punctures; towards the apices the elytra are smoother, having only fine rather rare punctures, more or less drawn out into longitudinal scratches. Two oblique striae may be present near the shoulder of either elytron. Keel of prosternum (Pl. XV. fig. 12) only about $1\frac{1}{5}$ as long as the breadth at the base, the front margin almost same width as the base, the striae approaching one another somewhat in the median part. Mesosternum very vaguely impressed, it and the metasternum with numerous large punctures, which end abruptly at the suture between metasternum and first abdominal segment; the latter is impunctate excepting for a very few small punctures, but has (like the pygidium) an extremely fine microscopic rugulosity or alutaceousness of the surface. Wings not reduced. Six specimens.

Hab. Molokai; 4000 ft., &c. (nos. 179, 191, 196, Perkins).

(11) *Acritus makaweliae*, sp. nov.

Oblongus, parum depressus, piceus, nitidus; capite subtiliter ac rare punctato; prothorace subtiliter nec dense (interdum conspicue aciculatim) punctato, basin versus in medio sat fortiter punctato; elytris basin versus fortiter nec dense punctatis, ad apices subtilissime (interdum longitudinaliter aciculatim) punctatis; prosterno suboblongo, transversim convexo; mesosterno et metasterno fortiter nec dense punctatis; segmento primo abdominis fere impunctato. Long. circa 1 mm.

This species is allied to *A. sculptus*, its scheme of sculpture being similar. It is distinguished by its smaller size and somewhat depressed form; the elytral punctures are much smaller and further apart, so that the elytra (Pl. XV. fig. 14) lack the coarse rough appearance seen in *A. sculptus*; the keel of the prosternum (Pl. XV. fig. 13) is narrower in proportion to its length; the meso- and metasternal punctures are smaller and the interspaces between them larger. The species have a quite different general appearance. The first abdominal segment of *A. makaweliae* is impunctate save for a very few small punctures, but has not the microscopic striation seen in *A. sculptus*.

There are two distinct sets of specimens; one in which the fine punctures of the head, all the front part of the thorax, and the apical portions of the elytra are markedly aciculate (i.e. drawn out into fine scratches); the other set in which they are quite simple or only very slightly drawn out. All the specimens however were found in the same locality, and within the same month. The same difference was noted between two specimens of *A. sculptus.* I think it highly probable that it is a sexual distinction[1]. In *A. makaweliae* it is to be noted that the presence of oblique striae on the elytra is not correlated with the presence either of simple or aciculate punctures; there are three specimens, two in the aciculate, the third in the simple-punctured group, with two oblique striae on either elytron, while in all other specimens the striae are not visible. Wings not reduced. Eight specimens.

Hab. Kauai; all from Makaweli, 2500 ft. II. 1897 (no. 668, Perkins).

(12) *Acritus waianaae,* sp. nov.

A. basalis var. Sharp, Tr. Dublin Soc. III. 1885, p. 226.

A. subbasali affinis; prothorace crebre punctato, ante basin in medio punctis parum fortioribus (sed haud transversim impresso); elytris parum fortius, sat aciculatim, punctatis; prosterno eo *A. subbasalis* parum latiore; mesosterno impresso, punctato, sed haud rugoso; metasterno fortius eo *A. subbasalis* punctato. Long. 1 mm.

A depressed form, much resembling *A. subbasalis,* but more strongly punctured. The thoracic punctures become rather stronger in the mid-basal region, but there is no definite transverse impressed line. Elytral punctuation coarser than in *A. subbasalis,* the punctures slightly aciculate, but not drawn out into the sharp fine scratches seen in that species and in *A. germanus.* The keel of the prosternum (Pl. XV. fig. 15) is of the same form as, but slightly broader than, that of *A. subbasalis*: mesosternum somewhat impressed and punctate, but quite lacking the rugosity seen in that species. Metasternum with rather numerous punctures, first abdominal segment with very fine rare punctures. Wings not examined. Two specimens.

Hab. Oahu. Waianae mountains: one specimen found by Blackburn, and previously labelled "*Aeletes basalis* var."; the other found by Mr Perkins, IV. 1892 (no. 12).

(13) *Acritus basalis* (?), Leconte.

Acritus basalis Sharp, Tr. Dublin Soc. III. 1885, p. 226.

? *Acritus basalis* Leconte, Ann. Lyc. Nat. Hist. V. p. 170; P. Ac. Philad. 1853, p. 290.

Several specimens found by Mr Blackburn in mountain localities in Oahu were referred to the N. American species *A. basalis* Leconte, stated by Horn (P. Amer. Phil. Soc. XIII. 1873, p. 357) to occur in the region near Fort Yuma, California. I have examined four of these; one is labelled "*Aeletes basalis,*" the other three were each labelled "*Aeletes basalis* var." Comparison with the material collected by Mr Perkins has necessitated the placing of these four specimens in three different species; one is included in *A. subbasalis*, another is placed with one specimen found by Mr Perkins as *A. waianae*.

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[1] See J. Gerhardt, Deutsche ent. Zeitschr. 1903, p. 239. Two forms of the European *Acritus nigricornis* were found in the same locality, one with simple punctures on the elytra, the other with aciculate punctures ("Strichpunkturen"). Ten specimens of each were examined; all of the first form proved to be males, all of the second females.

There remain two (one being that labelled simply *A. basalis*) which, even though there seems some uncertainty as to whether they really belong to the N. American *A. basalis*, are quite distinct from either *A. subbasalis* or *A. waianae*. The chief distinction lies in the form of the keel of the prosternum (Pl. XV. fig. 16) which is broader (about twice as long as broad), oblong, with the striae almost parallel, so that the breadth of the keel is almost the same throughout its length; the front margin and striae are thick. The form is depressed. The thorax and elytra have numerous somewhat aciculate punctures; the punctuation is coarser than that of *A. subbasalis*, more like that of *A. waianae*. But unlike *A. waianae*, the thorax has a distinct rugosely sculptured mid-basal area, bounded in front by a slightly arcuate line. The specimens are rather larger than those of *A. subbasalis* and *A. waianae*, one being nearly 1¼ mm. long. The mesosternum is impressed and somewhat rugosely punctured, metasternum finely punctured, first abdominal segment scarcely punctured. Wings not examined.

HAB. Oahu; neighbourhood of Honolulu (Blackburn).

(14) *Acritus germanus*, sp. nov.

A. subbasali affinis, sed prothorace et elytris fortius aciculatim punctatis; prosterni striis antice magis divergentibus. Long. circa 1 mm.

Another depressed form, with marked basal thoracic rugosity and impression. Very like *A. subbasalis*; but the thoracic punctures are aciculate as well as the elytral, and the aciculate punctures as a whole are more marked; the keel of the prosternum is long and rather narrow as in *A. subbasalis*, but the striae diverge considerably, so that the front margin is much wider than the base. More than one oblique stria can be seen on either elytron; the metasternum in both specimens is proportionately rather long. Wings not examined. Two specimens, one distinctly smaller.

HAB. Oahu. Kaala mts., 2500 ft. XII. 1892 (no. 53); Mokuleiia, V. 1901, no. 752. (Perkins.)

(15) *Acritus subbasalis*, sp. nov.

A. basalis var. Sharp, Tr. Dublin Soc. III. 1885, p. 226.

Depressus, oblongus, piceo-testaceus, nitidus; prothorace subtiliter punctato, ante basin in medio transversim impresso ac rugoso; elytris subtiliter aciculatim (vel interdum simpliciter) punctatis; prosterno longo, angusto; mesosterno impresso et rugose punctato; metasterno et segmento primo abdominis subtiliter nec dense punctatis. Long. 1 mm.

Plate XV. fig. 17, pro- and mesosterna.

The general form is decidedly depressed. The prothorax has numerous fine punctures. In the median basal region is an impressed and shallowly rugose arc, bounded in front by a well-defined, transverse, slightly arcuate line. Elytral punctures sometimes very fine points, scarcely drawn out, sometimes fine elongate scratches; oblique stria near the shoulder very slightly marked. Prosternum about $2\frac{1}{2}$ times as long as the breadth at the base, the striae curving towards one another medially, slightly divergent anteriorly, front margin of nearly the same width as the base. Mesosternum rugulose, with a conspicuous, roughly triangular impression. Punctures on the metasternum and first abdominal segment fine and not very close.

The single specimen from Lanai agrees in colour and size with the type, but in sculpture approaches a little to *A. eutretus*. Eight specimens. Wings not reduced, examined in five Oahu specimens.

HAB. Oahu, Lanai.—Oahu; seven specimens from the mountains near Honolulu, VIII. 1900 (no. 785, Perkins); also one specimen, previously labelled "*Aeletes basalis* var.", from the Waianae mts. (Blackburn).—Lanai; near Waipaa, about 2000 ft. (no. 104, Perkins).

(16) *Acritus eutretus*, sp. nov.

Depressus, oblongus, piceus, nitidus; *A. subbasali* affinis, sed major; prothorace subtiliter nec dense punctato, ante basin in medio rugoso, lineâ impressâ arcuatâ; elytris subtiliter sed conspicue aciculatim punctatis; prosterno longo, angusto, striis subparallelis; mesosterno impresso, parum rugose punctato, metasterno subtiliter punctato. Long. $1\frac{1}{4}$ mm.

Plate XV. fig. 18.

Distinguished from *A. subbasalis* by the much larger size and darker colour, and by the sculpture of the elytra, which are marked with numerous fine punctures, drawn out before and behind into very fine, much elongated scratches. This form of sculpture ceases abruptly towards the shoulder in the region of the posterior oblique stria in the three Hawaii specimens; in the one from Oahu the scratches do not cease in the humeral area, but are altered in direction, and oblique. The prosternum is over twice as long as its breadth between the striae in the median part, and its breadth alters but little throughout its length.

It is possible that this form may prove to be a large and marked variety of *A. subbasalis*, but with the material at hand it seems better to give it a name. Four specimens. Wings not reduced.

HAB. Hawaii, Oahu.—Hawaii; Kilauea (nos. 531, 691).—Oahu; Mokuleiia, V. 1901 (no. 752).—(Perkins.)

(17) *Acritus* sp.?

There is a single specimen from Hawaii which does not appear to fall within the limits of any of the described species. It has the depressed form of *A. eutretus*, but the punctuation on the elytra is reduced, and like that of *A. nepos*. Moreover the keel of the prosternum is broader than that of either *A. nepos* or *A. eutretus*: it is oblong, only just twice as long as broad, with striae nearly parallel; in its proportion of length to breadth it resembles that of *A. basalis* as described on p. 523. The metasternum is scarcely punctured. Wings not examined.

HAB. Hawaii; Olaa, XI. 1896 (no. 635, Perkins).

(18) *Acritus lanaiensis*, sp. nov.

Ovalis, nigro-piceus, antennis pedibusque fusco-testaceis; haud fortiter nitidus; prothorace subtiliter et obsolete punctato, ante basin in medio rugoso, lineâ transversâ impressâ; elytris suturam versus punctatis, punctis ad latera et ad apices late obsoletis; prosterno sat longo, impunctato, inter strias concavo, striis subparallelis, fere rectis; mesosterno conspicue impresso, metasterno et segmento primo abdominis subtiliter punctatis. Long. 1¼ mm.

Plate XV. fig. 19; fig. 20, pro- and mesosterna.

The surface is seen under the microscope to be very minutely rugulose, and it has a characteristic, relatively dull, appearance. The prothoracic punctures are very fine and shallow; the basal sculpture is conspicuous, there being a median impressed and rugose area, bounded in front by a nearly straight line. On the elytra the punctures are restricted to a small area near the suture in the basal portion, a wide lateral part of the disc, and a broad apical portion, being impunctate. The chief character lies in the form of the prosternum, the keel of which is distinctly concave between the striae, a condition not found in any other known Hawaiian member of the genus (Pl. XV. fig. 20): it is about twice as long as the breadth between the striae; the striae are nearly parallel and straight. There is a conspicuous impression on the mesosternum; metasternum finely punctured.

In one specimen the elytral punctures are slightly aciculate and extend over a much larger area: this form is intermediate between that with the much reduced punctuation, and the var. *sculptilis*. Wings not examined. Seven specimens.

HAB. Lanai; 2000—3000 ft. (nos. 83, 93, &c., Perkins).

Acritus lanaiensis, var. *sculptilis*, var. nov.

Fortius punctatus; prothoracis punctis parum fortioribus; elytris crebre aciculatim punctatis, punctis ad latera haud late obsoletis; prosterno distincte punctato, angustiore; mesosterno rugose punctato, metasterno et segmento primo fortiter punctatis.

Agrees in colour, shape, size, and in the character of its surface, with the type; basal thoracic sculpture also similar. The prothoracic punctures are stronger. The elytra bear numerous aciculate punctures not confined to a small area, extending over the disc. Meso- and metasterna fairly strongly punctured. The prosternum too is distinctly punctured; its keel is concave between the striae as in the type, but is narrower, being more nearly three times as long as broad.

Though this form is in many respects distinctly different from the type, it appears better not to make it a distinct species, as the two forms have many important points in common, especially the concave prosternal keel. They are from the same locality. There exists always the possibility of differences being sexual. Wings not examined. Three specimens.

Hab. Lanai; about 2000 ft. (nos. 84, 91, 92, Perkins).

(19) *Acritus nepos*, sp. nov.

Oblongo-ovalis, piceus, nitidus; prothorace subtiliter nec dense punctato, ante basin in medio rugoso, lineâ transversâ impressâ parum arcuatâ; elytris suturam versus punctatis (interdum parum aciculatim), punctis ad latera et ad apices late obsoletis; prosterno sat longo et angusto, mesosterno impresso et rugose punctato, metasterno subtiliter punctato. Long. 1—1$\frac{1}{4}$ mm.

This is a less oblong and depressed form than *A. eutretus*. The chief distinction lies in the sculpture of the elytra, the punctuation of which is confined to the region near the suture, and becomes obsolete over a considerable part of the disc towards the sides, and towards the apices. In many respects this species is like *A. lanaiensis*, but is more shining, and has the prosternum of different form. The keel of the latter is rather long and narrow (a little over twice as long as the breadth in the middle), but the surface is not concave, but slightly convex.

The five specimens show considerable variation, but it is not possible to separate them. There are two large ones from Makaweli (Kauai), one of which has the elytra more strongly punctured, and the punctures more aciculate, than the rest: this specimen also shows a number of very fine longitudinal scratches or striae on the back part of the mesosternal impression and front part of the metasternum. The other large specimen has the punctuated part of the elytra reduced to a very small area, the remainder being quite smooth. The three remaining specimens are very much smaller: one is from Waimea (Kauai), the other two from Oahu. Wings not reduced.

Hab. Kauai, Oahu.—Kauai; Makaweli, 2500 ft. (no. 703); Waimea, 4000 ft.—Oahu; Waianae mts. (no. 4).—(Perkins.)

Acritus nepos, var. ?

A single specimen from Molokai agrees in all other respects with *A. nepos*, but has the prosternum proportionately longer; the keel being three times as long as it is broad in the middle. This character brings the specimen near to *A. similis* (also from Molokai), which has however numerous elytral punctures not at all confined to a small part of the disc. The wings are not reduced.

HAB. Molokai, 4500 feet and upwards, 11. IV. 1893 (no. 159, Perkins).

(20) *Acritus similis*, sp. nov.

Oblongo-ovalis, piceus, nitidus; fronte sat crebre punctato; prothorace crebre punctato, ante basin in medio lineâ impressâ parum arcuatâ; elytris crebre ac sat fortiter punctatis; prosterno longo, angusto, striis subparallelis; mesosterno parum impresso, hoc et metasterno crebre et sat fortiter punctatis. Long. $1\frac{1}{4}$ mm.

The single specimen differs from its allies in having fairly numerous and strong punctures on the frons. Prothorax and elytra are frequently and moderately strongly punctured, in addition to which there is a basal thoracic rugose area, bounded in front by an impressed line. The keel of the prosternum is long and narrow, about three times as long as its breadth in the middle; the striae are very little curved, the base slightly broader than the front margin. Metasternum slightly impressed; it and the metasternum numerously and fairly strongly punctured, the first abdominal segment less strongly punctured.

The conjunction in one individual of the fairly strong punctuation, basal thoracic sculpture, and long narrow prosternum, distinguish this specimen from any others that we have received. Wings not reduced.

HAB. Molokai, 11. IV. 1893 (Perkins).

(21) *Acritus monticola*, Blackburn.

Aeletes monticola Blackburn, Tr. Dublin Soc. III. 1885, p. 130.

I have examined Mr Blackburn's type of this species. We have one specimen which can without hesitation be referred to it. The keel of the prosternum is long, but proportionately broader than in *A. angustisternum*, being between $2\frac{1}{2}$ and 3 times as long as its breadth in the middle: the greater proportionate breadth is largely due to the striae being much more nearly parallel than in *A. angustisternum*, in which species they curve conspicuously towards one another in the middle portion. The mesosternum is impressed, with very fine shallow punctures, but not rugose. Blackburn could find no punctures on the metasternum, but the microscope reveals numerous very fine punctures in our specimen. The form is rather narrow and convex, the colour is very blackish with pitchy brown legs and antennae, the upper surface with very fine but distinct and numerous punctures evenly distributed, drawn out often into fine rugosities, and in our specimen finely aciculate. There is no special sculpture at the base of the thorax. Length $1\frac{1}{2}$ mm.

We have also two other specimens, with the keel of the prosternum proportionately narrower, and more like that of *A. angustisternum*, and the punctures on the upper surface not at all aciculate. These therefore vary slightly from the type. Wings not reduced.

HAB. Maui. All from Haleakala; the type from 5000 ft. (Blackburn); 5000 ft. and over (nos. 121, 128, 661, Perkins).

(22) *Acritus pulchellus*, sp. nov.

Sat latus, piceus, laevis, subtile punctulatus; prothoracis basi in medio rugosâ; prosterno angusto, striis rectis fereque parallelis; mesosterno impresso, sat rugose punctato; metasterno subtile punctulato. Long. fere $1\frac{1}{2}$ mm.

This species is of the same size as *A. monticola*, but slightly broader, with the general surface not rugulose, with the fine punctures more distinct but never aciculate; with a rugulose area in the mid-basal part of the thorax, giving the appearance of a marked transverse impressed line just in front of the base; with the keel of the prosternum flat and over $2\frac{1}{2}$ times as long as broad in the middle, the striae straight and almost parallel.

We have two pairs of specimens, one from Maui, the other from Molokai. The Maui specimens have a well-defined lighter, testaceous, area in the distal half of either elytron; one of them has marked rugulosities at the bases of the elytra. The punctuation of the underside is especially distinct in Molokai specimens. Wings not reduced.

HAB. Maui, Molokai.—Maui; Olinda, 4000 ft. III. 1894 (no. 112).—Molokai, no particulars.—(Perkins.)

(23) *Acritus angustisternum*, sp. nov.

Sat late ovalis, testaceus, nitidus, supra subtilissime punctulatus ac elytris interdum subtilissime rugulosis; pedibus longis; prothorace ad mediam basin rugose punctato; prosterno conspicue elongato ac angusto; mesosterno impresso, rugoso; metasterno subtilissime punctulato. Long. circa $1\frac{1}{8}$ mm.

Plate XV. fig. 21.

This is a somewhat broad long-legged species; the minute, shallow punctures and rugulosities vary in amount. Across the median basal portion of the thorax is a series of punctures and sculpture, appearing in some aspects as a marked transverse line or depression. The chief character lies in the form of the keel of the prosternum (Pl. XV. fig. 22), which is about $3\frac{1}{2}$ times as long as its breadth in the narrowest portion; the striae curve slightly inwards in its median part. The mesosternum is rugosely punctured. Wings not examined. Seven specimens.

HAB. Maui, all from Haleakala, 5000 ft. and over (no. 381, Perkins).

(24) *Acritus perkinsi*, sp. nov.

Sat late ovalis, fusco-testaceus, nitidus, supra obsolete punctulatus ac interdum inaequalis; pedibus longis; prothoracis basi punctata ac in medio haud profunde impressa; prosterno haud angusto; mesosterno impresso, rugose punctato. Long. circa $1\frac{1}{8}$ mm.

This rather broad, long-legged species is sometimes smooth, but frequently has a peculiar wrinkled appearance due to the presence of minute punctures and inequalities. In general form it is very like *A. angustisternum*, but is at once distinguished by the prosternum, which is shorter, and has the keel (Pl. XV. fig. 23) little more than twice as long as its breadth in the median portion. There is also a difference in the sculpture of the base of the thorax. In *A. angustisternum* the basal punctures and sculpture form a transverse line, just in front of the actual base, most marked in the middle, and extending some distance on either side. In *A. perkinsi* there is a shallow median depression, not extending far transversely; and on either side, as far as the posterior angle of the thorax, the actual base is punctured, and so has a beaded appearance (Pl. XV. fig. 24).

The surface of the mesosternum is rugose. Wings not examined. Ten specimens.

HAB. Molokai, 4500 ft., highest forest, &c. (nos. 155, 163, Perkins).

(25) *Acritus longipes*, Sharp.

Aeletes longipes Sharp, Tr. Dublin Soc. III. 1885, p. 129 and pl. IV. fig. 13.

I have examined the type and a smaller specimen of this species, found by Blackburn in Hawaii. The legs are conspicuously slender and long. The general form is rather narrow. A high power shows the surface to have some minute punctures and inequalities; there is a slight median impression at the base of the thorax. Keel of the prosternum about twice as long as broad, the front margin only slightly wider than the base, the surface rather convex. A marked depression is present on the mesosternum and front part of the metasternum. Length of the type $1\frac{1}{3}$ mm. The wings are much reduced, but to exactly what extent I have been unable to determine.

HAB. Hawaii (the type from Mauna Loa, over 4000 ft., Blackburn). ? Lanai and Maui (see below).

Mr Perkins has obtained no specimens quite agreeing with the typical *A. longipes*, but there are several specimens from other islands, the relation of which to *A. longipes* and to one another is somewhat doubtful. Blackburn (op. cit. p. 226) states that he found small specimens, apparently referable to *A. longipes*, on Lanai and Maui.

Acritus longipes var. *haleakalae*, var. nov.

Fusco-ferrugineus, prothorace subtiliter ac obsolete punctato, ad mediam basin impresso ac ruguloso; elytris obsolete aciculatim punctatis.

There are two rather large specimens, having the obsolete punctuation and basal thoracic sculpture more marked, so that they present a decidedly wrinkled appearance. In this respect they approach slightly to another species found in the same habitat, *A. monticola*, but are at once distinguished by the much broader prosternum, lighter colour, slender legs, and basal thoracic impression. The surface of the mesosternal impression bears an obsolete punctuation or rugulosity. The wings are reduced, being considerably shorter than the elytra.

Hab. Maui, Haleakala, 5000 ft. (Perkins).

(26) *Acritus laevis*, sp. nov.

Ferrugineus, laevis, impunctatus; pedibus longis et tenuibus; prothorace ante basin haud impresso; prosterno ei *A. longipedis* sat simili; mesosterno haud fortiter impresso. Long. $1\frac{1}{3}$ mm.

A single specimen is like *A. longipes* in general form and in having long slender legs, but is quite smooth and impunctate, without any basal thoracic impression or mark. The prosternum is slightly broader than in *A. longipes*, but whether the difference is sufficient to prove a specific character is uncertain. I have been unable to examine the wings.

Hab. Kauai, Halemanu, 4000 ft. v. 1895 (no. 504, Perkins).

(27) *Acritus subalatus*, sp. nov.

Piceus, laevis, impunctatus, nitidus; pedibus sat tenuibus; prothorace ante basin haud impresso; alis abbreviatis, elytris curtioribus; prosterno parum convexo, striis antice divergentibus; mesosterno impresso. Long. 1 mm.

Plate XV. fig. 25.

This dark, smooth and quite impunctate species, with rather long slender legs, is the only one in which it has been possible satisfactorily to examine the reduced wings. The wing is about $\frac{3}{5}$ as long as the elytron; the proportionate lengths of wing and elytron are shown in Pl. XV. fig. 26, and can be compared with those between wing and elytron of *A. kauaiensis*, shown in Plate XV. figs. 6 and 6*a*.

The keel of the prosternum is not quite twice as long as its breadth at the base; the base is broad, and the striae scarcely diverge in the basal part, but do so anteriorly. Two specimens.

There are two specimens from Molokai, which are larger than those from Lanai (being $1\frac{1}{4}$ mm. long), and with the prosternal keel proportionately broader. The wings are reduced, but it has not been possible with so little material to determine to what extent: it is possible they are even more reduced than those of the Lanai *A. subalatus*. I have included the Molokai specimens in the species. A third and smaller Molokai specimen, the wings of which it has been impossible to examine, appears inseparable.

HAB. Lanai, Molokai.—Lanai; 2000—3000 ft.—Molokai; two from 3000 ft., the third (the wings of which I have been unable to examine) from 6000 ft. 22. VI. 1893 (no. 192).—(Perkins.)

(28) *Acritus angustus*, sp. nov.

Ovalis, parum angustus, piceus, nitidus, impunctatus, laevis; prosterno sat longo, striis per totam longitudinem leviter divergentibus; mesosterno impresso. Long. 1 mm.

Smooth, impunctate, rather narrowly oval, with legs not extra long, and impressed mesosternum. Distinguished by the form of the keel of the prosternum, which has a narrow base, and is about twice as long as its breadth at the base, with the striae gradually diverging throughout their length from behind forwards.

A specimen from Kauai appears referable to this species. Wings not examined.

HAB. Hawaii, Kauai.—Hawaii; Olaa, XII. 1896.—Kauai; Halemanu, 4000 ft. V. 1895 (no. 504).—(Perkins.)

(29) *Acritus concentricus*, Sharp.

Aeletes concentricus Sharp, Tr. Dublin Soc. III. 1885, p. 130.

Plate XV. fig. 27.

I have examined the type of this species, which has not been obtained by Mr Perkins. It is a small, rather narrow and convex form, at once distinguished from all its congeners by the arrangement of the fine striae on the elytra; those in the basal region near the suture "being nearly longitudinal in their direction; those outside them are curved inwards towards the suture behind, while the scratches on the more posterior portion are nearly transverse in direction." The pronotum bears very fine obsolete scratches. Keel of the prosternum short and broad, only 1½ times as long as its breadth in the middle, slightly convex transversely, the striae diverging slightly in front. Mesosternum without any impression; it and the metasternum quite impunctate, the suture between them scarcely visible. Length 1 mm. Wings not examined.

In the original description the mention of striae "about the scutellum" must not be taken to imply the presence of any visible sclerite of that name; under a high power it is seen that there is absolutely no visible scutellum.

HAB. Maui (?). Blackburn (op. cit. p. 226) states "occurs in wood at an elevation of about 4000 ft. on Haleakala, Maui." (Dr Sharp, op. cit. p. 140, states that the type was found by Blackburn in the mountains near Honolulu, Oahu.)

(30) *Acritus flavitarsis*, Lewis.

Aeletes flavitarsis Lewis, Ent. Mo. Mag. XVI. p. 79.

Plate XV. fig. 28.

I have examined one of the original specimens found by Mr Blackburn. Mr Perkins has not obtained this species. *A. flavitarsis* is very clearly distinguished from the other very small species, *A. subrotundus* and *A. parvulus.* Its form is oblong and narrow. The prosternum (Pl. XV. fig. 29) is as short as that of *A. subrotundus*, but has its base narrow, only about ½ as broad as its front margin between the striae: in front it is medially elevated and rather strongly arched. Meso- and metasterna and first abdominal segment decidedly flattened (the former not impressed), the two latter with extremely fine, very rare, punctures. Suture between the meso- and metasterna distinct. A beaded border, formed by a row of fine impressions, is present along the inner sides of the prosternal striae, and along the lateral mesosternal marginal striae. It is continued, much more sharply marked, along the diverging striae on the metasternum and first abdominal segment. The upper surface has extremely fine rare punctures. Legs rather long. Colour of specimen examined testaceous, length just over ¾ mm. Wings not examined.

HAB. Oahu, specimen examined recorded from near Honolulu (Blackburn). (Two specimens in the British Museum obtained by Blackburn, placed as this species, belong to *A. subrotundus* q. v.)

(31) *Acritus solitarius*, sp. (?) nov.

Laevis, nitidus, supra impunctatus; prosterno curto, ei *A. flavitarsis* sat simili; mesosterno impresso; metasterno in medio sat crebre punctulato. Long. circa 1 mm.

There is a single specimen having the keel of its prosternum short, with rather narrow base, and striae widely diverging in front. In this respect the specimen comes close to *A. flavitarsis*, but is decidedly larger, relatively broader, and with only faintly marked beaded borders. I have given it a name, though it is uncertain whether it may not prove to be a large variety of *A. flavitarsis.*

The metasternum is distinctly punctured, the punctures in the middle being rather close and forming a conspicuous group. Wings not examined.

HAB. Oahu, back of Tantalus, VI. 1901 (no. 781, Perkins).

(32) *Acritus insolitus*, sp. nov.

Oblongo-ovalis, piceus, nitidus, impunctatus; prosterno conspicue curto ac lato; mesosterno et parte anteriore metasterni longitudinaliter impressis. Long. 1 mm.

Plate XV. fig. 30, the sterna.

This is a smooth impunctate form without conspicuously long legs. Certain characteristics of *A. politus* Leconte and *A. brevisternus* de Marseul, as described by Horn (P. Amer. Phil. Soc. XIII. 1873, p. 356), appear to be combined in it. As in *A. politus*, the mesosternum (Pl. XV. fig. 30) has a longitudinal impression or furrow extending on to the front part of the metasternum; a form of impression not yet found in any other Hawaiian *Acritus*, for in all other cases the impression has a wide, roughly triangular form, and is almost confined to the mesosternum. The prosternum is more like that of *A. brevisternus*, the keel (Pl. XV. fig. 31) being only $1\frac{1}{4}$ times as long as the breadth in the narrowest part, and with a broad base. There is however no transverse row of punctures between meso- and metasterna as in *A. brevisternus*. In the form of the prosternum the species is like *A. subrotundus*, but is easily distinguished by larger size, less round form, by the mesosternal furrow, and the diverging striae on metasternum and first abdominal segment not being obliterated posteriorly.

We have only one specimen. Wings not reduced.

HAB. Kauai, Halemanu, 4000 ft. V. 1895 (no. 504, Perkins).

(33) *Acritus parvulus*, sp. nov.

Fortiter nitidus, nigricans, parum depressus; prothorace elytrisque subtilissime ac obsolete punctulatis; prosterno longiore eo *A. subrotundi*; metasterno et mesosterno convexo, hoc nullo modo impresso. Long. circa $\frac{3}{4}$ mm.

This species, with *A. subrotundus* and *A. flavitarsis*, is of the smallest size found in the genus. Dorsally it is very slightly depressed, and the punctuation appears as numerous exceedingly fine inequalities of the surface.

In form it is more oblong than *A. subrotundus*, but not so narrow as *A. flavitarsis*. The prosternum (Pl. XV. fig. 32) in length is intermediate between the very short form found e.g. in *A. subrotundus*, and the longer form found in *A. longipes*: in general shape it is saddle-like, forming an arch transversely, and with the lateral parts having rather concave-curved surfaces longitudinally; the striae diverge considerably in front; in one specimen they are obliterated near the anterior margin. The species agrees with *A. subrotundus* in having the mesosternum convex, but is at once distinguished from it by the diverging striae not being obliterated posteriorly. The meso- and metasterna bear excessively minute punctures, only visible under a high power; suture between them visible. Three specimens. Wings not reduced, examined in all three specimens.

HAB. Lanai, 2000 and 3000 ft. (nos. 92, 93, Perkins).

(34) *Acritus subrotundus*, sp. nov.

Ovalis, convexus, niger, fortiter nitidus, impunctatus; pedibus haud longis; prosterno curto, basi conspicue lato; infra fortiter convexus, mesosterno nullo modo impresso. Long. circa $\frac{3}{4}$ mm.

Plate XV. fig. 33.

The unique example obtained by Mr Perkins is unfortunately in very bad preservation, but still serves to show very clearly the distinguishing features. This species is at once distinguished from all other Hawaiian members of the genus by two characters: (1) the diverging striae on the metasternum and first abdominal segment are quite obliterated posteriorly, ending blindly in the region where they would normally curve round behind the coxae; (2) the prosternum is not only very short, but its width between the striae at the base equals $\frac{3}{4}$ (or more) of its length, and the striae diverge little in front (Pl. XV. fig. 34).

The relatively broad, oval form, the total absence of punctures, and the strong convexity of meso- and metasterna are also noteworthy characters. The mesosternum is short, the suture between it and the metasternum fine but distinct. In addition to the example obtained by Perkins, I have examined two in the British Museum, obtained by Blackburn, placed as *A. flavitarsis*, but undoubtedly of this species. Wings not examined.

HAB. Oahu, back of Tantalus, VI. 1901 (no. 781, Perkins).

Fam. SCAPHIDIIDAE[1].

SCAPHISOMA Leach.

Scaphisoma Leach, Edinb. Encycl. IX. 1812, p. 89; Erichson, Nat. Ins. Deutsch. III. 1848, p. 8.

(1) *Scaphisoma perkinsi*, sp. nov.

Sat angustus, ovalis, convexus, nitidus, niger, elytrorum apicibus late flavo-testaceis, pedibus antennisque testaceis, his apicem versus parum infuscatis; capite laevi, fere impunctato; prothorace antrorsum fortiter angustato, subtilissime punctato; elytris sat fortiter, aequaliter nec dense punctatis, striâ suturali antice haud arcuatâ; abdominis apice testaceo. Long. corp. (sine capite) fere 1½ mm.

A graceful, narrow (but not extremely narrow) form, shining black, with the apices of the elytra broadly pale yellow-testaceous. The thoracic punctuation is so fine as to be only with difficulty visible. The elytral punctures are well marked, but not very close. The sutural stria is well marked, and does not curve outwards at its anterior end. The prothorax is much narrowed in front, and its front margin is sometimes very narrowly testaceo-piceous. As it seems not very likely that a *Scaphisoma* would be introduced, I have described this species, although there are a number of species with which it has not been possible to compare it. Of those which I have seen, the Central American *S. longicolle* Matthews somewhat approaches it. The chief characters of *S. perkinsi* appear to be the broadness of the pale apical part of the elytra, the rather narrow form, and the straight anterior endings of the sutural striae. Five specimens. One, which is piceous-brown instead of black, is possibly immature.

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[1] By Hugh Scott.

Hab. Oahu. Mokuleiia; Waianae mts., from fungus; Kaala mts., 1500 ft., from decaying trees; (Perkins).

Fam. SILPHIDAE[1].

Clambus, Fischer.

Clambus Fischer, Ent. Russ. I. 1820, Gen. p. 52.

(1) *Clambus*, sp. ?

A single specimen appears, after close comparison with British members of the genus, to be referable to *Clambus*. It does not agree specifically with the British forms. The head bears some extremely fine punctures and very scanty pubescence. The prothorax and elytra are quite glabrous, smooth, and shining, and strongly convex. There is some very scanty pubescence beneath. The elytra are piceous; the head also dark, lighter near the front margin; the prothorax and legs are testaceous; more or less infuscated; the antennae similar, except for the two-jointed club, which is darker. Length with head and prothorax extended about $1\frac{3}{4}$ mm.

Hab. Found at Kilauea, Hawaii, IX. 1896 (no. 685, Perkins). ? Introduced.

Fam. TRICHOPTERYGIDAE[1].

In this family, the material which we have received is very small, and in some cases insufficient for satisfactory examination. When more exhaustively collected, the species may prove to be numerous.

Actidium, Matthews.

Actidium Matthews, Ent. Mo. Mag. V. 1868, p. 12; Trichopterygia (London), 1872, p. 86 and pl. VII.

(1) *Actidium sharpianum*, Matthews.

Actidium sharpianum Matthews, Cist. Ent. III. 1882, p. 39 and pl. II. fig. 2; Trichop. Supplement, 1900, p. 94: Sharp, Tr. Dublin Soc. III. 1885, p. 225.

We have not received this species from Mr Perkins.

Hab. Oahu. Under bark in mountain forests (Blackburn).

Ptiliodes, Matthews.

Ptiliodes Matthews, Cist. Ent. III. 1882, p. 40; Trichop. Supplement, 1900, p. 75 and pl. XIII. B.

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[1] By Hugh Scott.

(1) *Ptiliodes blackburni*, Matthews.

Ptiliodes blackburni Matthews, Cist. Ent. III. p. 41; Trichop. Sup. p. 76, Sharp, l. c.

A small form of short, contracted appearance, with antennae rather short, with the prothorax transverse, nearly quadrate, with the hind angles almost right angles. Matthews' figure (Trichop. Sup. pl. XIII. fig. B. 7) of the antenna is not altogether correct: joints 6—9 are not really such simple oval structures as there depicted, but more ampulliform: joints 3—8 are however slightly narrower than the corresponding ones of the species described below.

HAB. Oahu. Under bark (Blackburn).

I have looked all through the British Museum collection of Trichopterygidae, which contains that formed by Matthews, without finding anything which specifically resembles the two following species; which appear to be undoubtedly new. I am not quite certain to which genus they should be referred; whether to *Ptiliodes* or *Nephanes*.

They are chiefly characterised by the form of the prothorax, which is transverse, rather broad, not steeply sloping at the sides, with the sides rounded and curving in posteriorly, so that the hind angles are much rounded off. The antennae are moderately long, 11-jointed, with the joints ampulliform. The maxillae appear to be like those of *Nephanes*. The middle coxae are almost contiguous; the mesosternum slightly elevated, not keeled. The hind coxae are very remote, short (from base to apex), with a narrow lamina on the external margin in the apical portion only: the metasternal margin between them is straight. The apex of the abdomen is not sharply acuminate.

Matthews stated (Trichop. Sup. p. 76) that he was inclined to place *Ptiliodes* next to *Nephanes*, Thomson. When the species described below are placed side by side with *Ptiliodes*, the structure of their under surface closely resembles that of *Ptiliodes*; more closely than it resembles that of certain *Nephanes*. The short hind coxae are also characteristic of *Ptiliodes*; but the presence of the marginal lamina only in the apical portion is characteristic of *Nephanes*: for Matthews describes and figures the hind coxa of *Ptiliodes blackburni* as having a broad rounded lamina extending the whole length of the margin. Insufficiency of material prevents me from making a Balsam preparation of the hind coxa of *P. blackburni* in order to examine it accurately: I cannot discover that Matthews made any such preparation.

The two following species are placed provisionally in *Ptiliodes*.

(2) *Ptiliodes insignis*, sp. nov.

Elongato-oblongus, sat depressus, aegre nitidus, tote alutaceus, piceus antennis pedibusque testaceis, pubescentiâ parcâ et pallidâ; capite permagno, porrecto, antennarum articulis 3—10 ampulliformibus; pronoto subtilissime nec dense punctulato, transverso, lato, lateribus haud fortiter declivis, rotundatis, angulis posticis fortiter rotundatis; elytris suboblongis, fortius nec dense punctatis. Long. $\frac{3}{4}$–1 mm.

Larger than any described species of *Nephanes*, and than *P. blackburni*. Distinguished from all of them by the form of the pronotum; this is transverse, rather broad, not sloping steeply at the sides, with the lateral margins rounded, producing an outline which is strongly curved inwards posteriorly, so that the hind angles are completely rounded off, and may almost be said to be non-existent.

One specimen differs considerably in appearance; it is darker, with the abdomen more elongate, and the elytra appearing narrower posteriorly: it seems probable that the difference in form is largely due to the abdomen being much less retracted than in the other specimens. Wings present; seen in a Canada balsam preparation to have the scape long and narrow, the membranous portion narrow and lanceolate. Seven specimens.

HAB. Kauai, Oahu, Hawaii.—Kauai; mts. Waimea, 4000 ft.—Oahu; near Honolulu.—Hawaii; Kona, 4000 ft.—(Perkins.)

(3) *Ptiliodes pulchellus*, sp. nov.

Parum major, laevior, nitidus, niger antennis pedibusque testaceis; pronoto curto, fere impunctato, postice magis eo *P. insignis* angustato, lateribus et angulis posticis conspicue rotundatis; elytris fortiter nec dense punctatis, basin versus angustatis.

A single specimen. Some of the difference in appearance between it and *P. insignis* may be due to the pubescence in *P. pulchellus* being largely rubbed off. But it is clearly distinguished by (i) the form of the pronotum, which is more narrowed posteriorly, the hind angles being even more rounded off than they are in *P. insignis*; (ii) the curving in of the lateral outlines of the elytra towards their base; (iii) the larger size, the length being slightly over 1 mm.; (iv) above all, the shining black surface.

HAB. Oahu (Perkins). No particulars of capture.

PTINELLA, Motschoulsky.

Ptinella Mots., Bull. Mosc. 1845, p. 505; Matthews, Trichop. p. 164 and pl. XIX.

(1) *Ptinella pacifica* Matthews.

Ptinella pacifica Matthews, Cist. Ent. III. 1882, p. 42, and pl. II. fig. 4; Trichop. Sup. p. 20: Sharp, l. c.

We have not received this species from Dr Perkins.

HAB. Oahu, under bark in mountain forests (Blackburn).

TRICHOPTERYX, Kirby and Spence.

Trichopteryx Kirby and Spence, Introd. to Ent. III. 1818, p. 40; Matthews, Trichop. p. 112 and pl. XII.

We have received a single specimen belonging to this genus. Although the elytra cover the body, yet their short truncated form, and the presence of numerous other characters, render it almost certain that the abdomen is unnaturally retracted. The antennae are only moderately long; the head is somewhat deflexed; the pronotum large, with posterior angles produced; the mesosternum bears a very definite keel; the anterior coxae are in contact; middle coxae close, but not in contact; hind coxae fairly remote, with a broad rounded lamina all along the outer margin. All these features are characteristic of *Trichopteryx*. The metasternum between the hind coxae has its angles slightly produced, acute: but not drawn out so much as to form sharp teeth such as are found in *Actinopteryx*.

(1) *Trichopteryx*, sp.?

Colour piceous, legs testaceous. Punctures numerous, slightly raised. Pubescence conspicuous, rather long. Surface alutaceous. Pronotum slightly wider at the base than the elytra, with hind angles produced.

HAB. Lanai, 2000 ft., I. 1894 (Perkins).

Fam. STAPHYLINIDAE.

Tribe *PIESTINI.*

THORACOPHORUS, Motsch.

Thoracophorus Motschoulsky, Bull. Mosc. 1837, V. p. 98.

Glyptoma (pars) Erichson, Gen. et spec. Staph. p. 908.

Erichson mixed two very distinct genera under the name of *Glyptoma*, and it has therefore been necessary to limit his name to a form not found in Hawaii, and the Hawaiian genus becomes *Thoracophorus*.

(1) *Thoracophorus blackburni*, Sharp.

Glyptoma blackburni Sharp, Trans. ent. Soc. London, 1880, p. 53, and Tr. Dublin Soc. III. 1885, p. 224.

The peculiar sculpture, consisting on the elytra of straight raised lines, is characteristic for this genus. The species varies somewhat in size and in the coarseness of the sculpture. Unicolorous brown specimens are occasionally met with; the result probably of immaturity.

Hab. Kauai, Oahu, Maui, Molokai, Lanai, Hawaii. Under bark of trees on the mountains (Blackburn).—Kauai; mts. Waimea, 4000 ft. May 1894, Koholuamano, April 1895, Makaweli, 2500 ft. Feb. 1897 (Perkins).—Oahu; Honolulu end of Koolau range XII. 1900, Waialua, 2000 ft. IV. 1893, Kawaialoa, 2000 ft. I. 1893, *Pipturus*, back of Tantalus XI. 1900, Mokuleiia, V. 1901, Waianae mts. V. 1901.—Maui, Haleakala, 5000 ft. III. and IV. 1894.—Molokai, 3000 ft. VI. and VII. 1893.—Lanai, 2000 and 3000 ft. I., II. and VI. 1894.—Hawaii, Kona, 3000 and 4000 ft. VIII. and IX. 1892.—(Perkins.)

(2) *Thoracophorus brevipennis*, Sharp.

Glyptoma brevipenne Sharp, Trans. ent. Soc. London, 1880, p. 53.

Hab. Oahu, Maui.—Oahu rare, in the mountains (Blackburn). Haleakala 5000 ft. IV. 1894, a single specimen (Perkins).

LISPINUS, Er.

Lispinus Erichson, Gen. et Spec. Staph. 1840, p. 828.

(1) *Lispinus impressicollis*, Motsch.

Lispinus impressicollis Motsch. Bull. Mosc. 1857, IV. p. 495.

Lispinodes quadratus Blackb. Tr. Dublin Soc. ser. 2, III. 1885, p. 125.

This is a widely distributed species and no doubt an adventitious member of the Hawaiian fauna.

Hab. Oahu. Near Honolulu (Blackburn, Perkins); Waianae mountains, 1700 ft., April 1892 (Perkins).—India, &c.

ANCAEUS, Fauv.

Ancaeus Fauvel, Bull. Soc. Normand. 1865, p. 60.

(1) *Ancaeus laevigatus*, Kr.

Lispinus laevigatus Kraatz, Wiegm. Arch. 1859, I. p. 188.

Lispinodes pallescens Blackburn, Tr. Dublin Soc. III. 1885, p. 126.

The type of this species was examined by M. Fauvel, and I am indebted to him for the synonymy.

Hab. Oahu, a single specimen under the bark of a tree near Honolulu (Blackburn).—Ceylon, &c.

LISPINODES, Sharp.

Lispinodes Sharp, Trans. ent. Soc. London, 1880, p. 54.

(1) *Lispinodes explicandus*, Sharp.

Lispinodes explicandus Sharp, l. c. p. 53.

This is the most flat of the species and has the eyes better developed than the congeners. It differs also in the shape of the prothorax, which is less transverse. The last segment of the abdomen is narrow and conical in some specimens (? the female), in others it is shorter and broader, with the ventral plate much abbreviated, and furnished with setae on the hind margin.

HAB. Oahu, Lanai, Hawaii.—Oahu, found rarely under the bark of trees on the higher mts. (Blackburn).—Lanai, 2000 ft. 1894 (Perkins).—Hawaii, Hualalai, IX. 1900, one specimen (Perkins). I am not sure that this Hawaiian individual is the same species.

(2) *Lispinodes pallidus*, sp. nov.

Subdepressus, subglaber, nitidus, fusco-testaceus, parce fortiter punctatus; prothorace transverso, posterius fortiter coarctato. Long. 2½ mm.

Judging from a single specimen it would appear that *Lispinodes pallidus* is distinguished from most of the other species by the more definite, though scanty and distant, punctuation of the upper surface. It is larger than *L. explicandus*, is considerably less flattened, and has the prothorax differently shaped. *L. kauaiensis* is much larger and is less shining.

HAB. Lanai, 2000 ft., Jan. 1894 (Perkins). One specimen.

(3) *Lispinodes oxytelinus*, sp. nov.

Subcylindricus, subglaber, nitidus, piceus, obsolete punctatus. Long. 3 mm.

This species has the less depressed, more cylindrical form of the following congener, from which it is readily distinguished by its longer elytra. The elytra are longer in proportion to their width than they are in any other species. They are shining and almost destitute of punctuation. The unique example is, I believe, a female.

HAB. Lanai, Feb. 1894 (Perkins).

(4) *Lispinodes molokaiensis*, sp. nov.

Angustus, cylindricus, nitidus, subtiliter coriaceus, parcius obsolete punctatus, piceo-niger, antennarum basi pedibusque rufis; prothorace elytrisque elongatis. Long. 3¼ mm.

A little larger and broader than *L. oxytelinus* and darker in colour; the elytra and metasternum are elongate. The unique specimen is a male; the last ventral plate being concave and hairy, but not to so remarkable an extent as in *L. kauaiensis*.

HAB. Molokai, II. VI. 1893 (Perkins).

(5) *Lispinodes kauaiensis*, sp. nov.

Supra subplanatus; piceo-niger, antennarum basi pedibusque rufis; minus nitidus, supra parce, fortiter sed obsolete punctatus, capite thoraceque minus subtiliter coriaceis; prothorace transverso, elytris elongatis. Long. 3½ mm.

The unusually distinct, minute, coriaceous sculpture, together with the distant larger punctures, sufficiently characterise this species. I have four specimens before me; they have the last ventral plate peculiar, its surface forming a concavity densely covered with depressed pallid setae; all the four specimens are alike in this respect and may probably be all males.

HAB. Kauai, Koholuamano, 15. IV. 1895 (Perkins).

(6) *Lispinodes obscurus*, sp. nov.

Nigricans, parum nitidus, antennarum basi pedibusque rufis, subplanatus, obsolete punctatus, elytris modice elongatis. Long. 3¾ mm.

This is apparently nearest to *L. kauaiensis*, of which I know only the male; as we have only the female of *L. obscurus* a knowledge of the male may show the two to be quite distinct. The chief distinction from *L. kauaiensis* consists in the more obsolete scattered punctuation. From *L. molokaiensis L. obscurus* is easily distinguished by the less cylindrical form, and the duller, distinctly coriaceous surface. The unique example has the last abdominal segment simple, elongate and pointed.

HAB. Molokai, mts. 4500 ft., 23. XII. 1893 (Perkins).

(7) *Lispinodes hawaiiensis*, sp. nov.

Nigricans, haud depressus, antennarum basi pedibusque rufis; punctis majoribus sparsis conspicuis; elytris modice elongatis. Long. 3½ mm.

Extremely similar to both *L. kauaiensis* and *L. mauiensis*. The head and thorax are not so distinctly coriaceous as in the first of the two, but the impressed punctures on the thorax are less obsolete, and the elytra are a little shorter. The elytra are markedly longer than they are in *L. mauiensis* and the punctures on the thorax are more distinct.

The unique example has no remarkable structure at the tip of abdomen. I suppose it to be a female.

HAB. Hawaii, Hilo under Koa bark 2000 ft. Jan. 1896 (Perkins).

(8) *Lispinodes mauiensis*, sp. nov.

Haud planatus, piceus, antennarum basi pedibusque rufis, obsoletius parciusque punctulatus, sat nitidus; elytris quadratis, oculis perparvis. Long. 3¼ mm.

We have only one specimen of this species; the elytra are not quite so short as in

L. crassiventris, but the eyes are very small, each only about as large as the terminal joint of the antennae. I suppose the individual to be a female as there is nothing peculiar about the abdomen, the terminal segment being slender conical as in the female of *L. explicandus*. The elytra are as long as they are broad; the head and thorax are considerably more distinctly coriaceous than the elytra; the other punctuation is very slight.

Hab. Maui, Haleakala, 5000 ft. iv. 1894 (Perkins).

(9) *Lispinodes crassus*, sp. nov.

Robustus, niger, antennarum basi pedibusque rufis, elytris metasternoque brevibus, illis transversis. Long. 4 mm.

This is the most robust of the species yet discovered, and has the elytra shorter comparatively than any other, and it is also the one in which the eyes are most reduced in size. The abdomen is not at all flattened but is quite cylindrical: the head looks narrow in comparison with the more robust abdomen; the antennae are a good deal thickened towards the tip; the head, thorax and elytra are very distinctly coriaceous, and there is very little other sculpture. This species probably cannot fly. Only two specimens have been procured, and they represent the sexes; the one that I suppose to be the male has the last ventral plate deeply notched, or emarginate, behind, and flattened in front of the emargination.

The second individual I believe to be a female of the same species, though the abdomen is more slender than it is in the supposed male: it has the last ventral plate simple, but the last dorsal has a rather broad longitudinal depression along the middle.

Hab. Maui, Haleakala, 5000 ft. iii. and iv. 1894 (Perkins).

(10) *Lispinodes germanus*, sp. nov.

Elongatus, piceus, antennarum basi pedibusque rufis; parcius punctatus; elytris subquadratis. Long. 5 mm.

Of this we have only one specimen; it is longer than *L. crassus* and the elytra are not so short. The sex is no doubt the same as that of the individual I have considered the ♀ of *L. crassus*. The terminal segment is elongate, and is narrow at the extremity; the last dorsal plate is slightly impressed on the middle at the tip, and the last ventral has likewise a depression at the tip.

Hab. Hawaii, Hilo, found on the decaying stem of a tree *Lobelia*, 2000 ft. i. 1896 (Perkins).

Tribe *OXYTELINI.*

OXYTELUS, Grav.

Oxytelus Gravenhorst, Micr. 1802, p. 101.

(1) *Oxytelus ferrugineus*, Kr.

Oxytelus ferrugineus Kraatz, Wiegm. Arch. 1859, I. p. 173.

Oxytelus bledioides Blackb., Tr. Dublin Soc. ser. 2, III. p. 125.

M. Fauvel has examined the type of *O. bledioides* in the British Museum, and has kindly instructed me as to the synonymy.

HAB. Oahu, Honolulu one specimen (Blackburn).—Ceylon.

(2) *Oxytelus advena*, Sharp.

Oxytelus advena Sharp, Trans. ent. Soc. London, 1880, p. 50.

HAB. Kauai, Oahu, Lanai, Molokai.—Kauai, mts. Waimea, 4000 ft. VI. 1894. Makaweli, 2000 ft. I. 1897 (Perkins).—Oahu; various localities (Blackburn); *Pipturus*, back of Tantalus VII. 1900; Kaala mts. 2000 ft. II. 1892; Waianae mts. IV. 1892 (Perkins).—Lanai, 2000 ft. XII. 1893 (Perkins).—Molokai, Pelekunu, 1893 (Perkins).

(3) *Oxytelus pygmaeus*, Kr.

Oxytelus pygmaeus Kraatz, Wiegm. Arch. 1859, I. p. 176.

HAB. Oahu, Hawaii.—Oahu, Honolulu in decaying vegetable matter (Blackburn).—Hawaii, Olaa, 1500 ft. XII. 1896, one specimen (Perkins).

(4) *Oxytelus*, sp.

Two specimens of a small *Oxytelus*, somewhat similar to *O. advena* but more shining and with more extensively black abdomen, have been found. They are probably an introduced species.

HAB. Oahu, Honolulu mts. in summer, Honolulu, II. 1891 (Perkins).

TROGOPHLOEUS, Mannerh.

Trogophloeus Mannerheim, Brachél. 1830, p. 49.

(1) *Trogophloeus senilis*, Sharp.

T. senilis Sharp, Trans. ent. Soc. London, 1880, p. 51.

M. Fauvel has suggested to me that this may be *T. fulvipes* Er., but Erichson gives the length of *T. fulvipes* as 1 lin. whereas *T. senilis* is 3 mm. long. As the Erichsonian species is a West Indian insect I think it will be better to leave the question open till we have more conclusive evidence. When I described the species I considered it to be an introduced one, and I still entertain this opinion. Indeed as Trogophloei are very readily distributed by artificial means, and as the three Hawaiian species are apparently nearly confined to Oahu, I expect they have all been introduced.

Hab. Oahu. On the margins of waters (Blackburn): Wailua, III. 1901, Waianae coast, I. 1901, mts. 3000 ft. 1892; (Perkins).

(2) *Trogophloeus fontinalis*, Sharp.

T. fontinalis Sharp, Trans. ent. Soc. London, 1880, p. 52.

M. Fauvel has suggested that this may be *T. insularis* Kr., a species which he informs me is widely distributed. The type of *T. insularis* was a Grecian specimen, and the original description does not accord at all well with *T. fontinalis*: so that the question must remain open. *T. fontinalis* has not been met with by Perkins and it is probably rare and local in Oahu.

Hab. Oahu, on the margins of running waters in the mountains (Blackburn).

(3) *Trogophloeus abdominalis*, Sharp.

T. abdominalis Sharp, l. c.

M. Fauvel informs me that this species is also found in the Antilles.

Hab. Oahu, Molokai.—Apparently a coast species.—Oahu (Blackburn and Perkins). Molokai, sea level, X. 1893 (Perkins).

Tribe *PAEDERINI*.

Lithocharis, Lacord.

Lithocharis Lacordaire, Faun. Ent. Paris, 1835, p. 431.

(1) *Lithocharis vilis*, Kr.

Lithocharis vilis Kraatz, Arch. f. Naturges. XXV. I. 1859, p. 139.

Lith. fuscipennis Kr.?, Sharp, Tr. Dublin Soc. ser. 2, III. 1885, p. 223.

This species has not been found by Dr Perkins. It is a widely distributed form. The above synonymy I owe to the kindness of M. Fauvel.

Hab. Oahu, Honolulu (Blackburn).

MEDON, Steph.

Medon Stephens, Ill. Brit. Ent. v. 1832, p. 273.

(1) *Medon debilicornis*, Woll.

Lithocharis debilicornis Wollaston, Cat. Col. Mad. p. 194.

Medon (*Hypomedon*) *debilicornis* Ganglbauer, Käfer Mitt. Eur. II. p. 523.

Hab. Oahu, Molokai.—Oahu, Honolulu (Blackburn).—Molokai, leeward side, sea-level, x. 1893 (Perkins).

(2) *Medon celebensis*, Fauv. (i. l.).

This is a small delicate insect looking like *M. debilicornis* but considerably narrower. As I have only one specimen, and the species is foreign to our fauna, I cannot deal further with it. M. Fauvel informs me that he subsequently found his *L. celebensis* to be a previously described species, but he cannot recall what.

Hab. Oahu, in vegetable refuse, the beach, near Honolulu (Blackburn).

OPHIOMEDON, Sharp.

Ophiomedon Sharp, Biol. Centr. Amer. Col. I. pt. 2, p. 567.

When I established the genus *Ophiomedon* for some South American insects, I examined the Hawaiian *Lithocharis incompta* and labelled the type specimen "an aberrant *Ophiomedon*."

(1) *Ophiomedon incomptus*, Sharp.

Lithocharis incompta Sharp, Tr. Dublin Soc. III. 1885, p. 124.

Ophiomedon incomptus Sharp, Biol. Centr. Amer. Col. I. pt. 2, p. 567.

This has not been found again since Mr Blackburn's discovery of it. I looked on it as a form imported from the New World, but I cannot point out anything there as very closely allied. The discovery of a second, allied, form on another island makes this more doubtful.

Hab. Hawaii, a few specimens in *Freycinetia* flowers at an elevation of about 4000 ft. on Mauna Loa (Blackburn).

(2) *Ophiomedon subtilis*, sp. nov.

Subdepressus, dense subtilissime punctatus, haud nitidus, fusco-ferrugineus, antennis palpis pedibusque rufo-testaceis, elytris versus suturam cumque abdominis segmentorum marginibus rufescentibus. Long. vix 5 mm.

This insect has much the aspect of a *Lithocharis*, but the prothoracic side-pieces are enlarged behind so as to conceal the stigma. The head is subquadrate, the hind margin straight, not emarginate in the middle. The thorax is nearly as long as broad, a good deal narrowed behind, very finely and densely punctured, with an extremely fine channel along the middle. The elytra are densely and finely punctured and are longer than the thorax. The hind margins of the segments of the abdomen and the tip are reddish.

The unique example is a male; the front tarsi are a good deal dilated; the last ventral plate is notched in the middle. This is strongly different from *incomptus* by the longer prothorax.

HAB. Kauai, Makaweli, 2500 ft. II. 1897 (Perkins).

NESOMEDON, gen. nov.

Mandibulae elongatae, bidentatae et unidentatae, palpi maxillares articulo ultimo fortiter dilatato. Tarsi breves et crassiusculi, anteriores leviter dilatati.

The genus is nearly allied to *Medon* as exemplified by *M. brunneus*, but I think should certainly be separated. The prothoracic epimera are largely developed. The eyes are very small. The type of the genus and the closely allied *N. oahuensis* are apterous, but I have for the present associated a form—*N. quadratus*—with them, that is winged. The genus differs from *Ophiomedon*, by the coarse sculpture, the more rounded head with smaller eyes, and—in its typical species—by the very short metasternum, and the absence of wings. The left mandible is armed with one sharp tooth, the right mandible with two.

(1) *Nesomedon brunnescens*, sp. nov.

Rufo-brunneus, palpis pedibusque testaceis; capite thoraceque dense fortiter punctatis, hoc medio tenuiter canaliculato; elytris brevibus, scabroso-punctatis; abdomine pubescente, dense punctato. Long. 4½—5 mm.

Plate XVI. fig. 23.

Antennae somewhat infuscate, rather short, 2nd and 3rd joints subequal in length, 9th—11th joints slightly broader, the 10th about as long as broad, 11th small, oval. Head subquadrate but with the hind angles much rounded, scarcely broader than the thorax, coarsely and very densely punctured. Thorax slightly narrowed behind, with the angles much rounded, less densely punctured than the head, and with a fine channel along the middle that does not extend to the front. Elytra shorter than the thorax, contracted at the base, with dense, rough, not coarse sculpture. Wings absent. Abdomen densely punctate.

The sexual distinctions are slight; in the male the front tarsi are a little broader, and there is a small emargination of the hind margin of the last ventral plate.

The three examples from Kauai agree well, and one, of two specimens, from Haleakala differs very little from them. Four examples from Molokai are rather more slender and are darker in colour, so that the elytra are more pallid than the head, thorax and base of the abdomen. The second example from Haleakala agrees with the Molokai individuals and I think all are one species.

HAB. Kauai, Molokai, Maui.—Kauai, high plateau, VIII. 1896.—Molokai mts. 4500 ft. 21. IX. 1893.—Maui, Haleakala 5000 ft. I. VI. 1894 and III. 1894.—(Perkins).

(2) *Nesomedon oahuensis*, sp. n.

Gracilior, piceus, palpis pedibusque testaceis, abdomine rufo-obscuro, segmento penultimo nigricante; capite thoraceque densius fortius punctatis; elytris angustis, scabroso-punctatis. Long. vix 4 mm.

We have only one specimen of this insect, but I venture to describe it, as it is clearly distinct and comes from a different island. It is smaller and much narrower than *N. brunnescens*, somewhat differently coloured, and has a more coarsely punctured thorax. It is a male, and the notch on the last ventral plate is rather more definite than it is in *N. brunnescens.*

HAB. Oahu (Perkins).

(3) *Nesomedon quadratus*, sp. n.

Nigricans, palpis pedibusque testaceo-obscuris, femoribus fuscescentibus; capite thoraceque dense fortiter punctatis; elytris parallelis, thorace paulo longioribus. Long. vix 4 mm.

N. quadratus is at once distinguished from the other species by the elytra not being narrowed at the shoulders (Pl. XVI. fig. 24). The metasternum is longer and the eyes better developed. It may prove to possess wings. We have one pair only; the male has a small definite notch on the last ventral plate, like *N. oahuensis.*

HAB. Hawaii, Olaa, XI. 1896 (Perkins).

Tribe *STAPHYLINI.*

PHILONTHUS, Curtis.

Philonthus Curtis, Brit. Ent. XIII. 1825, 610.

(1) *Philonthus scybalarius*, Nordm.

Philonthus scybalarius Nordm., Symbol. p. 94.

So far as has been noticed none of the other varieties of this species occur in Hawaii.

HAB. Kauai, Oahu, Maui, Molokai, Lanai (Blackburn and Perkins). Cosmopolitan.

(2) *Philonthus discoideus*, Grav.

Staphylinus discoideus Grav., Micr. p. 38.

HAB. Oahu, Maui, Molokai, Hawaii (Perkins and Blackburn). Widely distributed outside the islands.

(3) *Philonthus nigritulus*, Grav.

Staphylinus nigritulus Grav., Micr. p. 41.

HAB. Kauai, Oahu, Maui, Molokai, Lanai, Hawaii (Perkins and Blackburn). Cosmopolitan.

(4) *Philonthus turbidus*, Er.

Philonthus turbidus Er., Gen. and Spec. Staph., p. 484.

HAB. Kauai, Oahu, Maui, Molokai, Lanai, Hawaii (Perkins and Blackburn). Cosmopolitan.

CREOPHILUS, Mann.

Creophilus Mannerheim, Brach., 1830, p. 20.

(1) *Creophilus maxillosus*, L.

Staphylinus maxillosus L., Faun. suec. no. 891.

HAB. Kauai, Oahu, Maui, Lanai, Hawaii (Blackburn). Widely distributed.

CAFIUS, Stephens.

Cafius Stephens, Ill. Brit. Ent. v. 1832, p. 245.

(1) *Cafius nauticus*, Fairm.

Philonthus nauticus Fairm., Rev. Zool. 1849, p. 288.

HAB. Maui, coast near Haiku in March (Blackburn).—Tahiti (Fairmaire).

LEUROCORYNUS, gen. nov.

Palpi articulo ultimo parvo.

Caput sulcis irregularibus, subobsoletis.

Elytra sutura haud imbricata, singulo linea elevata recta.

The number of genera of Xantholinini with a minute terminal joint to the palpi is very small, and hitherto all have consisted of insects of small size. *Leurocorynus cephalotes* is a comparatively large form and is remarkable in the subfamily on account of the suture of the elytra. Each wing-case has a strongly elevated line extending from the scutellum to the hind margin: these lines are very nearly contiguous, and if they were flattened out and more separated the suture would be imbricate.

The antennae are widely separate, and the grooves behind them are broad and indefinite, the outer pair especially are indistinct and are very strongly transverse in direction.

Labrum small, emarginate, the angle on the left side slightly more prominent than the other angle. Mandibles elongate, the basal part of each with three or four teeth, the indentation between the basal two teeth filled by a delicate membrane. Terminal joint of labial and of maxillary palpi very short and slender compared with the others. Middle coxae very distant, the mesosternum with rather blunt termination between them.

(1) *Leurocorynus cephalotes*, sp. nov.

Niger, subdepressus, palpis pedibusque interdum rufescentibus; nitidus, elytris subopacis; capite fortiter irregulariter punctato, thorace punctis perpaucis irregulariter notato, elytris punctis sat numerosis plus minusve obsoletis. Long. 11—25 mm.

Plate XVI. fig. 22.

Extremely variable in size; and the larger specimens have usually more punctuation on the head, while that on the elytra is more effaced. In correlation with the difference of size there are distinctions in the shape of the specimens, the smallest individuals being nearly parallel, while the largest have the abdomen very broad, the lateral margins being remarkably wide. The species seems most at home in the island of Kauai, and it is there that the largest examples occur. I have not noticed any sexual distinctions.

HAB. Kauai, Molokai, Lanai, Hawaii.—Kauai, 4000 ft. VI. 1894; mts. Waimea, 4000 ft. V. 1894; Koholuamano, 4000 ft. IV. 1895.—Maui, Haleakala, 4500 ft. IV. 1894. —Molokai, 4000 ft. 27. V. 1893.—Lanai, 3000 ft. VI. 1894, 2000 ft. I. 1894.—Hawaii, Hualalai, IX. 1900.—(Perkins.)

XANTHOCORYNUS, gen. nov.

Palpi articulo ultimo parvo.

Caput sulcis, praesertim intermediis, subobsoletis.

Pronotum seriebus dorsalibus punctorum.

Elytra sutura haud imbricata, singulo linea elevata sat discreta.

The insect for which I establish this genus has entirely the facies of the more feeble exponents of the genus *Xantholinus*, so that I was very much surprised when I found that it was quite distinct from that genus and that it is really closely allied to the other two Hawaiian forms of the subfamily Xantholinini.

It differs from *Leurocorynus* by so many minor points that I think in the Hawaiian fauna it should be treated as a distinct genus, though the discovery of an intermediate form may cause it to be merged in *Leurocorynus*. It is of narrow form, not flattened, and has two complete series of dorsal punctures on the thorax; the median grooves on the side of the head are obsolete, and the peculiar lines along the suture of the elytra are not so well developed.

The genus may be placed next to *Leptacinus*, from which it is well distinguished by the suture of the elytra and the longer palpi.

(1) *Xanthocorynus deceptor*, sp. nov.

Angustus, nitidus, picescens, antennis, mandibulis, palpis pedibusque rufis, abdomine apice et basi plus minusve rufescente. Long. 7½ mm.

Plate XVI. fig. 21.

The colour is predominantly dark, but looks as if this were a reddish insect strongly tinged with black, the thorax being almost quite black, while the legs are quite pale. The head is only obsoletely and sparingly punctured, punctures being quite absent all along the middle. The long and narrow pronotum has on each side of the middle a dorsal series of about ten punctures, and outside this a few other punctures irregularly placed; the punctures are subobsolete. The elytra are about as long as the thorax, rather sparingly punctured. Three specimens.

HAB. Kauai, mts. Waimea, 4000 ft. v. 1894 (Perkins).

HOLOCORYNUS, gen. nov.

Palpi articulo ultimo parvo.

Elytra sutura haud imbricata.

Caput antice 4-sulcatum.

Pedes intermedii subapproximati mesosterno inter eos elongato-acuminato.

At the time I described *Pachycorynus discedens* I remarked that it was really a distinct genus. The discovery of allied, but generically distinct, forms, makes it desirable to give this form due generic rank. There can be no doubt that it is closely allied to *Leurocorynus*, from which *Holocorynus* differs by the definite frontal grooves, the more approximate middle coxae and the absence of the raised margins along the suture of the elytra.

(1) *Holocorynus discedens*, Sharp.

Pachycorynus discedens Sharp, Tr. ent. Soc. London, 1880, p. 50.

In this species the penultimate joints of the antennae, and the impressed punctures on the head and thorax, are large and remarkably definite. It has not been found by Dr Perkins.

HAB. Oahu, under bark in the forest (Blackburn).

(2) *Holocorynus subdepressus*, sp. nov.

Depressus, capite thoraceque piceis, parce punctatis, antennis palpis pedibusque testaceis, elytris testaceo-obscuris subtiliter punctatis, abdomine nigricante apice ferrugineo; antennis articulis 5—10 fortiter transversis. Long. 5 mm.

This is much smaller than *H. discedens*, and is readily distinguished by the much shorter antennae; it is less depressed and the punctuation of the surface is finer.

HAB. Kauai, Makaweli, 2500 ft., II. 1897. Three specimens (Perkins).

LEPTACINUS, Er.

Leptacinus Erichson, Käf. Mark Brand. I. 1837, p. 429.

(1) *Leptacinus flavipennis*, Kr.

This has not been met with recently and is no doubt an introduced form.

HAB. Oahu, Honolulu (Blackburn).

Tribe *ALEOCHARINI.*

MYLLAENA, Er.

Myllaena Erichson, Käf. Mark Brand. I. 1837, p. 382.

About 12 species of this genus have been obtained in Hawaii, and doubtless others exist there. Although they are small and obscure insects they really form a remarkable element in the Hawaiian fauna. The Munich Catalogue of Coleoptera enumerates only 18 species for all the world, and this number has not since been greatly added to. The species are a most difficult study, for forms found in widely separated parts of the world are extremely similar and the discrimination of the species is usually a matter of much difficulty. I regret that I am obliged to leave the Hawaiian Myllaenas in an unsatisfactory state, the material at my disposal being inadequate as regards both number of specimens and their mode of preservation. The species may possibly be ultimately satisfactorily precised by means of the male genitalia, which are of a remarkable character. But I am not able to make use of this structure at present.

(1) *Myllaena discedens*, Sharp.

Myllaena discedens Sharp, Tr. ent. Soc. London, 1880, p. 49.

This very remarkable *Myllaena* has not been met with recently; and is no doubt both local and rare. I believe that it is an apterous form and entitled to generic rank.

HAB. Oahu, in fallen logs on the hills a few miles from Honolulu (Blackburn).

(2) *Myllaena*, sp.?

A single individual from Haleakala, has very short elytra and approximates a good deal to *M. discedens*. It is very close to *M. rufescens* but has more slender antennae and will probably prove to be a different species.

HAB. Maui; Haleakala, 5000 ft., X. 1896 (Perkins).

(3) *Myllaena rufescens*, sp. nov.

Rufa, capite abdominisque medio plus minus infuscatis; antennis minus gracilibus, apicem versus subincrassatis; elytris thorace brevioribus. Long. 2½ mm.

This is longer than *M. curtipes*, and paler in colour; and I have no doubt as to its being distinct although the small series before me is in very bad preservation. The wings are short, and quite useless for flight.

Hab. Kauai. Mts. above Waimea, v. 1894; high plateau, viii. 1896; Kauai, 4000 ft. vii. 1896; (Perkins).

(4) *Myllaena haleakalae*, sp. nov.

Angusta, fusco-rufa, antennis palpis pedibusque rufis, antennis minus gracilibus, apicem versus subincrassatis, elytris thorace brevioribus. Long. 2½ mm.

This is comparatively narrower than *M. rufescens* and is darker in colour, and I think will prove distinct though we have only two specimens.

There is also a single specimen from Molokai of a very similar insect, but it is too much mutilated to form an opinion about; high forest, Molokai, 1893 (Perkins).

Hab. Maui. Haleakala, nearly 10,000 ft. iv. 1894; Haleakala, 5000 ft. ix. 1896. —? Molokai (Perkins as above).

(5) *Myllaena curtipes*, Sharp.

Myllaena curtipes Sharp, Tr. ent. Soc. London, 1880, p. 49.

A very tiny species, with comparatively short and stout antennae and legs, and the elytra just perceptibly shorter than the thorax. The colour is fuscous, smoky blackish-red. Dr Perkins has only found two examples.

Hab. Oahu. Konahuanui, 3000 ft. (Blackburn): Wailua, iv. 1901; Honolulu mountains, vi. 1900; (Perkins).

(6) *Myllaena vicina*, Sharp.

Myllaena vicina Sharp, Tr. ent. Soc. London, 1880, p. 48.

This species has the antennae more slender and less thickened at the tip than any other of the Hawaiian forms, the penultimate joint considerably longer than broad. The colour is red, much infuscate. The species has ample wings: the elytra are just slightly longer than the thorax.

Hab. Kauai, Oahu, Molokai, Maui.—Kauai: high plateau, viii. 1896; mts. Waimea, 4000 ft. vi. 1894.—Oahu: Honolulu mts. ix. 1896; Palolo, vii. 1900; back of Tantalus, vi. 1901; Kaala mts. 2000 ft. iii. 1893; Waialua, iii. 1901; Waimea watershed, iv. 1891.—Molokai: 11. vi. 1893; Pelekunu, high forest, no date; Molokai mts. 4000 ft. vi. 1896.—(Perkins.)—Maui (probably Wailuku valley, Blackburn); West Maui, Jao valley, iii. 1894 (Perkins).

(7) *Myllaena familiaris*, Sharp.

Myllaena familiaris Sharp, Tr. ent. Soc. London, 1880, p. 48.

The darkest in colour of the Hawaiian forms, the legs and palpi being much infuscate.

HAB. Oahu. Not rare in the mountain forests around Honolulu (Blackburn): Waimea mts. 2000—3000 ft. II. 1896; mts. near Honolulu, 2000—3000 ft.; back of Tantalus, VIII. 1900; back of Malukia on *Freycinetia*, XII. 1900; (Perkins).

(8) *Myllaena cognata*, sp. nov.

Nigra, subtilissime punctata, antennis palpis pedibusque nigro-rufis. Long. 3 mm.

This is extremely close to *M. familiaris* but is considerably larger: its smallest individuals when compared with *M. familiaris* are broader and less shining. We have received a considerable series, but the specimens are very badly preserved.

HAB. Hawaii: Hilo on decaying stem of tree *Lobelia*, 2000 ft. I. 1906; Hilo II. 1897; above Hilo, 1800 ft. XII. 1895; Kaumana, Hilo, 2000 ft. I. 1896; (Perkins).

(9) *Myllaena pacifica*, Blackburn.

Myllaena pacifica Blackburn, Tr. Dublin Soc. ser. 2, III. p. 121.

I am not able to form an opinion as to whether this is *M. cognata*.

HAB. Hawaii, a single specimen taken on a flower of *Freycinetia* on Mauna Loa, 4000 ft. (Blackburn).

(10) *Myllaena oxypodina*, sp. nov.

Minuta, fusca, antennis, palpis pedibusque pallide testaceis, pube omnium subtilissima vestita, elytris thoracis longitudine. Long. $1\frac{3}{4}$ mm.

This minute and delicate insect is represented only by a single example: I give it a name as it is quite distinct from anything else. The antennae are distinctly thickened towards the apex, the penultinate joint as long as broad. The base of the thorax is rounded rather than bisinuate; the elytra are slightly longer than the thorax; the punctuation is excessively fine; the extremely minute pubescence gives the upper surface a well-marked shimmer. The legs are rather short and stout.

HAB. Oahu, Honolulu, 2. VII. 1901 (Perkins).

(11) *Myllaena apetina*, sp. nov.

Brevis, crassiuscula, capite, thorace pedibusque rufo-testaceis, elytris, pectore abdomineque nigricantibus, antennis sordide rufis: elytris perbrevibus. Long. corporis contracti $1\frac{1}{4}$ mm.

Of this very remarkable species we have only one specimen and that in bad preservation, but it is not possible to confuse it with any other *Myllaena*; there is indeed no doubt that it will form a distinct genus. The fine down characteristic of the genus is wanting in *M. apetina*, the head and thorax being somewhat shining, and the abdomen hirsute. The antennae and legs are not so slender as they are in other species of the genus; and the extremely short elytra are also very remarkable. The antennae are not very slender, and are dull red in colour, they are slightly thickened towards the apex, the penultimate joint is not quite so long as broad, and the terminal joint is only a little longer than the 10th. The elytra are at the suture much shorter than the thorax; at the sides, though longer, they are nevertheless shorter than the thorax. Though wingless this species has no relations with the other wingless forms.

HAB. Hawaii? "Vol"[cano] VIII. 1896 (Perkins).

OLIGOTA, Mannerheim.

Oligota Mannerheim, Brach. 1830, p. 72.

The small tribe Oligotini—of which *Oligota* and *Liophaena* are the Hawaiian representatives—contained in the Munich Catalogue of the year 1868, 23 species, nearly all from the Palaearctic region, and placed in the single genus *Oligota*. The Central European region is, so far as we can judge at present, the metropolis of the group. In Ganglbauer's recent work "Käfer Mitteleuropas" 10 species are registered and all are placed in *Oligota*, with its two subgenera *Holobus* and *Oligota* proper. In the Hawaiian group of islands about 30 species have already been brought to light and they exhibit a most remarkable network of precinctive forms.

I regret extremely that I am not in a position to give a satisfactory analysis of this truly remarkable insular group. Oligotini are amongst the smallest of the Staphylinidae, a creature 2mm. long would be a giant in the tribe: they also lose their natural shape when dried, and are very difficult to restore. To the collector they appear very much alike, and therefore they have not been adequately collected.

Our Hawaiian forms should no doubt form four or five genera, but I am not able to precisely define them, so that after separating the genus *Liophaena* with three species, I place the other Hawaiian forms under the genus *Oligota*, and adopt five subgenera as follows.

Elytra very short, not longer than the thorax; form slender..................... *Deroligota* subg. n.
Elytra longer than the thorax:—
  Mandibles very long and slender .... *Gnatholigota* subg. n.
  Mandibles normal:—
    Antennae slender, abdomen rounded at the sides .... *Nesoligota* subg. n.
    Antennae very thick, abdomen narrowed from base to tip .... *Holobus* Solier.
    Abdomen subparallel (except at last segments) .... *Oligota* s. str.

OLIGOTA, *Deroligota* subg. nov.

Metasternum short; middle coxae only moderately distant, breast between them without transverse suture. Elytra not longer than the pronotum. Form slender.

This is probably an apterous form.

(1) *Oligota* (*Deroligota*) *prolixa*, Sharp.

Oligota prolixa Sharp, Tr. Dublin Soc. ser. 2, III. p. 220.

This is distinguished from all the other Oligotinae by the very short elytra.

The short series before me comes from three or four islands and exhibits a good deal of variation, so that I think there may prove to be more than one species of *Deroligota*.

The island my original type came from is somewhat uncertain. Mr Blackburn mentioned Maui and Hawaii as the homes of the species. When he sent me the specimen I described he did not tell me which island it came from. It does not agree with the other individuals before me, except with one specimen from the island of Lanai. These two individuals are darker in colour and have the elytra rather longer than the examples from Oahu and Kauai.

Without a larger series of specimens I cannot decide as to the treatment of these forms as more than one species. The species appears to be rare; usually only one specimen has been found at a time.

HAB. Kauai, Oahu, Maui, Lanai, Hawaii.—Kauai: 4000 ft. VI. 1894; Koholuamano, 19. VI. 1895 (Perkins).—Oahu: Waianae mts. 2000—3000 ft. II. 1896; Mokuleiia, V. 1901; Konahuanui ridge, XII. 1900; *Pipturus*, back of Tantalus, XI. 1900 and XII. 1900; Wahiawa, IV. 1901; (Perkins).—Maui (Blackburn).—Lanai, 2000 ft. I. 1894 (Perkins).—Hawaii (Blackburn).

OLIGOTA, subg. *Holobus* Solier.

(2) *Oligota* (*Holobus*) *clavicornis*, Sharp.

Oligota clavicornis Sharp, Tr. ent. Soc. London, 1880, p. 44.

Distinguished abruptly from all the other species, by the short convex form and by the abdomen narrowed from base to apex and by the terminal half of the abdomen being bright yellow.

In addition to my original type I have seen but one other example; and even this I think will ultimately prove to be another species, as the club of the antenna is not so broad, and the 6th joint not transverse.

Mr Blackburn's example was found in straw imported from England, and that had lain for two years in Honolulu. Dr Perkins' example was found twenty years subsequently, in July 1900. So that it would appear that this subgenus is now constantly present in the islands. It is however very different from any of the other Hawaiian forms.

Hab. Oahu. Honolulu (Blackburn); and, as var.?, *Pipturus*, back of Tantalus, VII. 1900 (Perkins).

Oligota, *Gnatholigota* subg. nov.

This subgenus is well distinguished by the remarkable mandibles (Pl. XVI. fig. 18). It is most difficult to extend these parts after the specimen has been dried, and I am not at all sure that the other species I have placed in the subgenus agree with *O. latifrons* in this respect. They are all apparently very rare insects.

(3) *Oligota* (*Gnatholigota*) *latifrons*, sp. nov.

Lata, brevis, nigra, nitida, pube minus obsolete parce vestita, antennis palpis pedibusque testaceis. Long. 1¾ mm.

Very short, and the broadest of all the *Nesoligota* division; very like *O. glabra* but at once to be distinguished by the much greater development of the pubescence, which although fine and scanty is conspicuous and beautifully regular.

The species should probably be a distinct genus, the structure of the mandibles being very peculiar (Pl. XVI. fig. 18) and their relation to the epistome remarkable. Six specimens.

Hab. Kauai, Halemanu, V. 1895 (Perkins).

(4) *Oligota* (*Gnatholigota* ?) *brevicollis*, sp. nov.

Nigricans, antennis palpis pedibusque fusco-rufis; pube suberecta sat dense vestita; thorace obsolete parciusque punctato, brevissimo; antennis articulis 8° et 9° latissimis, 7° fortiter transverso. Long. 1¼ mm.

The 4th and 5th joints of the antennae are bead-like, slightly broader than long, 6th broader transverse, the club very broad. Though much smaller than *O. latifrons*, this species has a similar facies. Three specimens.

Hab. Oahu, *Pipturus*, back of Tantalus, VII. 1900 (Perkins).

(5) *Oligota* (*Gnatholigota*) *anomalocera*, sp. nov.

Picea, pube delicata sat dense vestita, antennarum basi pedibusque testaceis; antennarum clava fusca, magna, et crassa et elongata. Long. 1½ mm.

Closely allied to *O. brevicollis*, but readily distinguished by the very remarkable antennae, the club of which is longer and more definite than in *O. brevicollis*. The pubescence and sculpture are not so slight as in *brevicollis*, and the surface is therefore less shining. One specimen.

Hab. Kauai, mts. Waimea, 4000 ft. vi. 1894 (Perkins).

(6) *Oligota* (*Gnatholigota*?) *parca*, sp. nov.

Sat lata, nigricans, antennis palpis pedibusque testaceis; pube suberecta vestita, fortiter parce punctato; antennis minus abrupte clavatis. Long. 1⅓ mm.

This differs from *O. brevicollis* by its narrower form, and by the different shape of the antennae, the 3rd, 4th, 5th and 6th joints being not transverse, the 7th slightly transverse, and the 8th moderately so. One specimen.

Hab. Molokai, high forest (Perkins).

(7) *Oligota* (*Gnatholigota*?) *extranea*, sp. nov.

Sat elongata, subparallela, haud nitida, fortiter punctata, longius sed haud dense pubescens, picea, antennis palpis pedibusque testaceis, illis clava fere abrupte quadri-articulata. Long. 1½ mm.

This is a very peculiar species, not likely to be confounded with any other; the last joint of the palpus is elongate, very slender and quite parallel, and contrasts strongly with the penultimate joint which is rather broader than usual in the Hawaiian species: the head is not pointed in front, and is coarsely punctured. The thorax is very short, and narrowed towards the base, rather than towards the front; the elytra are longer than the thorax, the abdomen elongate and narrow, slightly but distinctly narrower in front, though not at all rounded at the sides. The legs rather stout. Five specimens.

I am not at all clear as to the relation of this form to the other Hawaiian Oligotinae. The middle coxae are less widely separated than usual, the intercoxal suture between them very strongly marked. The mandibles are I believe longer than normal, though not so peculiar as in *O. latifrons*. On the whole I think it best placed at present in the subgenus *Gnatholigota*.

Hab. Molokai, highest mountains, ix. 1893 (Perkins).

Oligota, *Nesoligota* subg. nov.

The species of this genus have polished integuments, and but little sculpture on the abdomen; these characters distinguish the species from *Oligota*, s. str., and *Holobus*. From *Gnatholigota* the quite different shape of the head is sufficiently distinctive, without reference to the mandibles. The head is only about half as broad as the elytra, and looks somewhat acuminate in front. The "rounding" of the abdomen at the sides arises from the fact that the extreme basal segments are distinctly narrower than those that are antepenultimate.

(8) *Oligota* (*Nesoligota*) *latipennis*, sp. nov.

Perbrevis, lata, brunnea, antennis, palpis pedibusque flavis; capite, thorace elytrisque crebrius profunde fortiter punctatis; antennis sat elongatis, articulis nullis transversis. Long. 1½ mm.

We have only one individual of this remarkable species: but it will be very readily distinguished by the uniform coarse sculpture of the anterior parts. The hairs are very scanty, and the abdomen is destitute of sculpture.

HAB. Hawaii, Olaa, XII. 1896 (Perkins).

(9) *Oligota* (*Nesoligota*) *polita*, Sharp.

Oligota polita Sharp, Tr. ent. Soc. London, 1880, p. 45 [nec *O. polita* Sharp, Biol. Centr. Amer. Col. I. pt. 2, p. 293, 1883].

Very closely allied to *O. glabra* but slightly smaller, and with rather shorter antennae, specially joints 4--6. There is no distinct suture across the breast between the middle coxae.

We have a small series of this species from Oahu; and I have also referred to it with doubt a few specimens from Kauai; these do not quite agree in minor details; they exhibit a distinct suture between the middle coxae.

Two or three specimens are entirely pale reddish-yellow, and have the pectoral suture distinct. It is possible that these may be another species.

It will be seen from the above remarks that I have not treated the presence or absence of a suture on the isthmus between the middle coxae as of importance in this species. This character is however considered as so important in many Aleocharini that genera are founded on it. I may possibly be mistaken in my study of the Hawaiian forms; but as I have found specimens possessing the suture, and others without it, and could find no other distinction, I have been constrained to disregard this character.

HAB. Kauai. Oahu.—Kauai; Koholuamano, 1500—4000 ft. IV. 1895; high plateau, VIII. 1896; Makaweli, 2500 ft. II. 1897; (Perkins).—Oahu; generally on flowers of *Freycinetia* (Blackburn); Waianae mts. 2000—3000 ft. II. 1896; Honolulu mts. 2000 ft. 27. X. 1892; Waialua coast, IX. 1900; Konahuanui ridge, XI. 1900; back of Tantalus, VIII. 1900, and XII. 1900; back of Maluhia on flowers of *Freycinetia*, XII. 1900; (Perkins).

(10) *Oligota* (? *Nesoligota*) *kauaiensis*, Blackb.

Oligota kauaiensis Blackburn, Tr. Dublin Soc. III. p. 122.

I anticipate that this may prove to be a Kauai form of *O. glabra* or a closely allied species.

HAB. Kauai, Waialeale, August, one specimen by beating dead branches 2000 ft. (Blackburn).

(11) *Oligota* (*Nesoligota*) *cribripennis*, sp nov.

Lata, brevis, fere glabra, nigricans, antennis pedibusque testaceis, elytris piceis profunde remote punctatis. Long. ½ mm.

A very broad, compact little insect; closely allied to *O. glabra*, but comparatively broader, and distinguished by the more definite punctures on the elytra. The surface is almost destitute of pubescence. Four specimens.

HAB. Kauai, Halemanu, 4000 ft. V. 1895 (Perkins).

(12) *Oligota* (*Nesoligota*) *currax*, sp. nov.

Lata, subglabra, nigra, antennis palpis pedibusque testaceis, femoribus fuscis; pube rara sed minus minuta vestita; elytris parcius fortiter punctatis. Long. 1⅞ mm.

This is very closely allied to *O. glabra*; slightly larger, with the sculpture and pubescence more distinct, and the legs a little longer. Though we have only one example I have little doubt as to its being distinct.

HAB. Hawaii, Olaa, XI. and XII. 1896 (Perkins).

(13) *Oligota* (*Nesoligota*) *glabra*, Sharp.

Oligota glabra Sharp, Tr. ent. Soc. London, 1880, p. 46.

This is the most robust of the Hawaiian allied forms. In the mature state the colour is black, the antennae and legs yellow, but the latter always more or less infuscate, sometimes strongly infuscate; the club of the antenna may sometimes be slightly obscured in colour, especially at the tip. The sculpture is peculiar, consisting of a few large distant, shallow punctures, on the anterior parts only; the abdomen is destitute of punctuation, but its surface is finely coriaceous. The pubescence is excessively slight, so that it does not affect the shiningness of the surface, which however is much diminished by the minute coriaceous sculpture.

The specimens above described occur on several islands, but they exhibit considerable variation, so that it is probable that there may prove to be more than one species. The most remarkable point in the variation is in the suture between meso- and metasternum, which is sometimes obliterated and sometimes strongly developed. In the type specimen it is absent. Cf. no. 8—*O. polita*—as to this point.

HAB. Maui, Molokai, Lanai, Hawaii.—Maui, 5000 ft. III. and IV. 1894.—Molokai, 4000—5000 ft. VII. and IX. 1893.—Lanai, 2000 ft., I. 1894 and VII. 1894 (Perkins).—Hawaii: various localities not lower than 3000 ft., dry dead wood (Blackburn): Kona, 3000 ft. IX. 1892; Kilauea, VI. and VII. 1895 and VIII. and X. 1896; Hilo, 1800 ft. XII. 1895 and 2000 ft. I. 1896; (Perkins).

(14) *Oligota (Nesoligota) bicolor*, sp. nov.

Nitida, parcissime subtilissime pubescens fere glabra, capite thoraceque rufescentibus, abdomine elytrisque nigris, antennis pedibusque dilute flavis. Long. 1⅓ mm.

Closely allied to *O. polita*, but readily distinguished by the bright coloration, and its more slender form. There is no elevated carina between the middle coxae. Five specimens.

HAB. Oahu. Konahuanui Ridge, XI. 1900; back of Tantalus, XII. 1900; (Perkins).

OLIGOTA, s. str.

The species, 14—19, placed here at the head of *Oligota* s. str. are quite aberrant, and should probably be separated. From *O. mutanda* on to the end of the genus, the species are more like the European forms, and may possibly prove really congeneric therewith.

(15) *Oligota scripta*, sp. nov.

Nigerrima, nitida, parce punctata et pubescens, pedibus sordide testaceis, antennis flavis. Long. 1½ mm.

This species is remarkable by the highly developed minute sculpture of scratches, which it exhibits on the head, thorax, and elytra, in addition to the remote and distant strong punctures; this fine sculpture forms a dense minute network. On the abdomen this sculpture is less close and less definite: at the base of the second and third segments of this part there are a number of raised longitudinal plicae in the transverse basal depression. The antennae are moderately long, very pale yellow, the terminal joint slightly infuscate, the 7th joint not transverse, the 8th and 9th not strongly transverse.

This is one of the most obscure and difficult of the species, and careful collection and observation, with field notes, are requisite before the question of specific identity can be settled. It is possible that there may be difference in the sexes, but as there are no external characters at present known by which the sexes can be discriminated, this point must also stand over.

HAB. Kauai, Maui, Hawaii.—Kauai, Koholuamano; Kauai, 4000 ft. X. 1895; high plateau, 8. IX. 1896 (Perkins).—Maui, Haleakala, 5000 ft. X. 1896.—Hawaii; Kilauea, VII. 1896 and VIII. 1896 (Perkins).

Oligota scripta, var. *laetior*, var. nov.

The specimens of *O. scripta* from Kauai and Kilauea in Hawaii agree fairly well, but a short series from Hualalai in Hawaii can be distinguished by the more polished surface, the finer minute reticulate sculpture and the more effaced and scanty larger punctures of the prothorax. They are however so very similar to what I have considered the typical form that I think it best to treat them at present merely as a variety; one of them has the clypeus picescent. This individual makes some approximation to *O. frontalis.* One of the specimens is smaller, has the legs darker, and the punctuation of the elytra more distinct. It is doubtful whether it may not be another species.

HAB. Hawaii; Hualalai, 5000 ft. 5. VIII. 1892 and IX. 1900 (Perkins).

(16) *Oligota frontalis,* sp. nov.

Nigerrima, nitida, capite testaceo vertice fusco, pedibus fusco-testaceis, antennis flavis. Long. 1⅓ mm.

Closely allied to *O. scripta,* but with finer sculpture and readily distinguished by the yellow head; the antennae are short, even the 7th joint being distinctly transverse. Two specimens.

A third specimen, from back of Tantalus, is entirely brownish yellow, with the front of the head paler. It may be another species, or it may be an immature variety.

HAB. Oahu. Waianae mts. 2000—3000 ft. II. 1896; and var. ?, back of Tantalus, VII. 1900 (Perkins).

(17) *Oligota adpropinquans,* sp. nov.

Nigerrima, nitida, minuta, parce punctata, pedibus vix fusco-testaceis, antennis palpisque flavis. Long. 1¼ mm.

I separate a single individual from *O. insolita* on account of its narrower more parallel form. I see no other distinction of importance.

HAB. Oahu, Waianae mts. 2000—3000 ft. II. 1896 (Perkins).

(18) *Oligota insolita,* sp. nov.

Nigerrima, nitida, minuta, brevis, minus angusta, parce punctata, pedibus fusco-testaceis, antennis palpisque flavis. Long. 1¼ mm.

This tiny insect, though closely allied to *O. frontalis,* is doubtless quite distinct. It has the head black, and is of shorter and broader form. The 8th joint of the antenna is decidedly but not strongly transverse. Two specimens.

HAB. Kauai, Makaweli, 2500 ft. II. 1897 (Perkins).

(19) *Oligota gymnusa,* sp. nov.

Nigra, subopaca, minus parce punctata, longius pubescens, antennis flavis. Long. 1½ mm.

This, though looking very distinct from *O. scripta,* is really closely allied; it is of much broader form, and the sculpture is much denser, which gives it a dull appearance. The elytra are rather longer than usual, and the tarsi short. The 8th and 9th joints of the antennae strongly transverse.

HAB. Lanai, 2000 ft. I. 1894 (Perkins).

(20) *Oligota simulans*, Blackb.

Oligota simulans Blackburn, Tr. Dublin Soc. ser. 2, III. p. 123.

I think this species is certainly near to *O. gymnusa*, though it comes from a different island.

Hab. Kauai, Waialeale. A single specimen by beating branches of trees, 2000 ft. (Blackburn).

(21) *Oligota mutanda*, Sharp.

Oligota mutanda Sharp, Tr. ent. Soc. London, 1880, p. 46.

This insect is narrow, and is of very dark colour; there is usually a very faint metallic reflection from the upper surface; the punctuation is scanty but rather coarse and rough. The legs are always very dark, sometimes quite black, and they are slender. The antennae are yellow, but they are slightly darker at the tip, sometimes strongly so. I see no distinct indication of a suture on the breast between the coxae. Nine specimens. There is also one from Maui that seems quite the same.

Hab. Hawaii, Maui.—Hawaii, Mauna Loa, 4000 ft. (Blackburn): Kilauea, VIII. 1895, VIII. 1896, IX. 1896, and also X. 1896; Kona, 5000 ft. 30. VI. 1892; (Perkins).—Maui, 5000 ft. X. 1896 (Perkins).

(22) *Oligota oahuensis*, sp. nov.

Angusta, fusca, antennis pedibusque testaceis, illis brevibus, subtiliter crebre punctata, brevissime pubescens. Long. 1½ mm.

Closely allied to *O. mutanda*, rather smaller and paler in colour, with finer punctuation and pubescence, and rather shorter antennae, the 4th joint of which is not longer than broad. Seven examples from Oahu and one from Lanai agree satisfactorily; the five individuals from Kauai are darker in colour, but may well be the same species.

Hab. Kauai ?, Oahu, Lanai.—Kauai, mts. Waimea, 4000 ft. VI. 1894.—Oahu, back of Tantalus, VIII. 1900; Konahuanui Ridge, XII. 1900.—Lanai, 2000 ft. 1894. (Perkins.)

(23) *Oligota haleakalae*, sp. nov.

Angusta, fusca, antennis pedibusque testaceis, illis sat elongatis; crebre subtiliter punctata, brevissime pubescens. Long. fere 2 mm.

This is extremely closely allied to *O. oahuensis* but distinctly larger, and with more elongate antennae. One specimen.

Hab. Maui, 5000 ft. V. 1896 (Perkins).

(24) *Oligota tenuicornis*, sp. nov.

Minus angusta, nigricans, nitida, antennis palpis pedibusque testaceis, crebre subtiliter punctata et pubescens, antennis gracilibus. Long. 1¾ mm.

Closely allied to *O. oahuensis* but broader, and with much more slender antennae, the 7th joint being not broader than long, and the 8th and 9th only feebly transverse, whereas in *O. oahuensis* all three are strongly transverse. The metallic reflection present on *O. oahuensis* and *mutanda* is not seen in this species. One specimen.

HAB. Hawaii, Kilauea, VII. 1895 (Perkins).

(25) *Oligota aethiops*, sp. nov.

Angusta, nigerrima, antennis flavis, pedibus fuscis, capite thoraceque obsolete parce punctatis, subtilissime pubescentibus, abdomine minus obsolete punctato, subtiliter pubescente. Long. 1⅝ mm. One specimen.

HAB. Hawaii, Kilauea, VIII. 1895 (Perkins).

(26) *Oligota pernigra*, sp. nov.

Minus angusta, nigerrima, nitida, antennis flavis, pedibus fuscis, parce subtiliter punctata et pubescens. Long. 1½ mm.

This is a broader insect than *O. aethiops*, and more shining; the thorax is broader than the abdomen which is not the case with *O. aethiops*. It also greatly resembles *O. mutanda*, but is of an intense black colour without metallic reflection, and is considerably smaller. One specimen.

HAB. Lanai, 3000 ft. I. 1894 (Perkins).

(27) *Oligota longipennis*, Blackburn.

Oligota longipennis Blackburn, Tr. Dublin Soc. ser. 2, III. p. 123.

I conclude from Mr Blackburn's brief description, that his *O. longipennis* is allied to *O. oahuensis*, but the coloration he gives does not apply satisfactorily to any member of this group.

HAB. Oahu, a single specimen (Blackburn).

(28) *Oligota variegata*, Blackburn.

Oligota variegata Blackburn, Tr. Dublin Soc. ser. 2, III. p. 124.

M. A. Fauvel who has examined the type thinks this will prove to be *O. parva* Kr. As that species is believed to be distributed by commerce this is quite possible. Ganglbauer considers *O. parva* may be an exotic species introduced to Europe, where it occurs in various localities; and it is widely distributed elsewhere.

HAB. Oahu, one specimen under bark of a living tree, Konahuanui, 3000 ft. (Blackburn).

LIOPHAENA, Sharp.

Liophaena Sharp, Tr. ent. Soc. London, 1880, p. 48.

Though closely allied to *Oligota* by means of the subgenus *Oligota* proper *Liophaena* is very distinct by its slender long legs and the great elongation of the basal joint of the feet; this segment is considerably longer than the following three together.

(1) *Liophaena gracilipes*, Sharp.

♀ *Liophaena gracilipes* Sharp, Tr. ent. Soc. London, 1880, p. 47.

♂ *L. flaviceps* Sharp, l. c. and Tr. Dublin Soc. pl. IV. f. 9.

I have now no doubt that these two supposed species are the sexes of one only. Mr Perkins has met with them two or three times and always apparently in company, or at any rate in the same district. The sex with the orange-yellow head and thorax is no doubt male.

The colour of the head and thorax in the male forms a striking contrast to the elytra, which are intense black and highly polished, but which possess a scanty peculiar sculpture of oblique scratches (Pl. XVI. fig. 25). In the female the surface is not so highly polished and shining. When the thorax of the male is pushed back on the elytra, the black colour of these and of the scutellum make the base of the thorax appear black.

HAB. Hawaii. Mts. Hualalai about 5000 ft. 5. VIII. 1892; Hualalai, IX. 1900; Kona, 5000 ft. 4. VII. 1892 and 4000 ft. 25. VII. 1892, also 3000 ft. IX. 1892; Kilauea, VII. 1895 and VIII. 1895, also IX. 1896 (Perkins). Mauna Loa near the crater, about 4000 ft. (Blackburn).

(2) *Liophaena centralis*, sp. nov.

♂ Nigerrima, capite, antennis, palpis pedibusque pallide flavis; ♀ capite nigro. Long. fere 2 mm.

This is extremely close to *L. gracilipes* but in the male the thorax is entirely black like the elytra. The size is a little less, and there is rather less sculpture on the elytra.

There are three examples of *L. centralis* from Lanai and three from Molokai. A single female from Haleakala may perhaps also be *L. centralis*, but it is a very large specimen.

HAB. Lanai, Molokai, Maui.—Lanai, 2000 ft. XII. 1893 and I. 1894.—Molokai, 2. VI. 1893.—Maui, Haleakala, 5000 ft. III. 1894. (Perkins.)

(3) *Liophaena oahuensis*, sp. nov.

♂ Nigerrima, nitida, capite, thorace, antennis palpis pedibusque pallide flavis; elytris parcissime punctatis. Long. fere 2 mm.

We have only one example and I am not sure that it is distinct from *L. gracilipes*. It is a little smaller and the head and thorax are entirely pallid yellow; and the sculpture on the elytra about the suture is less marked.

HAB. Oahu. Kaala mts. 2000 ft. XII. 1892 (Perkins).

EUDIESTOTA, gen. nov.

Partes oris elongatae, graciles. Prosternum medio compresso-carinatum, valde descendens. Metasternum inter coxas minus productum, mesosternum haud attingens, apice acuminato.

This genus differs from *Diestota* by the more elongate mouth-parts, the terminal joint of the labial palp being remarkably slender and elongate; and by the middle coxae being rather less widely separated and the apex of the metasternum between them being acuminate and not joining the posterior projection of the mesosternum. The only species is very like an *Atheta*, and its nearest allies seem to be *Diestota athetiformis* and *angustifrons*.

(1) *Eudiestota grandis*, sp. nov.

Elongata, supra deplanata, fusco-nigra, palpis pedibusque fusco-testaceis; capite, thorace elytrisque opacis, subtiliter granuloso-sculpturatis; abdomine parcius subobsolete punctato. Long. 6 mm.

Plate XVI. fig. 15.

In shape this insect resembles the larger and flatter species of *Atheta*. The antennae are elongate, the penultimate joint about as long as broad; they are strongly setose, black, the basal two joints a little yellow at the tip. The head is broad and short, dull, with a fine distant sculpture of minute granules. The thorax is a little narrower, the elytra strongly transverse, distinctly narrowed behind, sculptured like the head, but the granules more numerous, in the middle before the base distinctly flattened but scarcely impressed. The elytra are much longer than the thorax, sculptured like it. The abdomen is piceous, obsoletely punctate. The legs are dirty yellow, the femora darker. The male has the last dorsal plate slightly emarginate, with a minute tooth on each side, and between the two with about eight very short serrations, in shape very much like the teeth of a saw. One specimen.

HAB. Kauai. Mts. Waimea, 4000 ft. VI. 1894 (Perkins).

Diestota, Muls. and Rey.

Diestota Muls. and Rey, Opusc. ent. xiv. 1870, p. 194.

This genus was founded for an insect found but very rarely on cistus flowers in the south of France. Fauvel has since identified the species with the previously described *Bolitochara testacea* Kraatz from Ceylon, and he has also informed me that our Hawaiian *Bolitochara impacta* is again the same species. A few other species have been added to the genus by myself. They are from Central and S. America.

Diestota is probably the most numerous in species of all the genera of Hawaiian Staphylinidae, and it is likewise a very difficult one. I recommend the student to pay particular attention to the sculpture of the head which in many cases is very greatly developed, while in others it is quite obsolete. A few species are more or less intermediate. For the purposes of a table the following three divisions may be of some use.

1. Elongate species, without transverse joints to the antennae and about 5 mm. long ....species 1—3.
2. Smaller insects, from 1¾ to 4 mm. long.
   - *a.* Head coarsely punctured ....species 4—17.
   - *b.* Head obsoletely punctured ....species 18—29.

Group 1. Elongate species very like large species of *Atheta.*

(1) *Diestota athetiformis*, sp. nov.

Nigricans, pedibus fusco-testaceis, supra deplanata, capite thoraceque opacis omnium subtilissime granuloso-punctatis; elytris densius minus subtiliter granuloso punctatis; abdomine nitido, parce punctato. Long. 5 mm.

Very like *Eudiestota grandis.* Antennae with the penultimate joints distinctly transverse. Head very dull, with a minute fovea on the middle. Thorax strongly transverse, distinctly narrowed behind, very dull, broadly flattened along the middle and very slightly depressed there. Elytra a good deal broader and longer than the thorax, and much more distinctly sculptured. Male, last ventral plate obsoletely granulate, slightly emarginate behind, with the margin serrate with seven very short serrations and a slightly longer one on each side. One specimen.

Hab. Lanai, 2000 ft. 1894 (no. 83, Perkins).

(2) *Diestota currax*, sp. nov.

Fusco-nigra, antennarum basi palpisque fusco-testaceis, pedibus testaceis; capite, thorace elytrisque opacis, capite thoraceque parcissime subtilissimeque granuloso-punctatis, elytris subtiliter dense ruguloso-punctatis; abdomine nitido, parce punctato. Long. 5½ mm.

This is very like a large *Atheta*; it is larger and broader than *D. athetiformis*, has a slightly longer thorax and different male characters. The mesosternum is strongly carinate in front, but the carina does not extend further back than the most anterior part of the middle acetabula. The male has a long curvate spine on each side of the last ventral plate, and between the two seven or eight shorter spines; all the spines are blunt at the tip. One specimen.

HAB. Lanai, 3000 ft. VI. 1894 (Perkins).

(3) *Diestota angustifrons*, sp. nov.

Nigra, antennarum basi palpisque fusco-testaceis, pedibus rufis; capite, thorace elytrisque opacis; capite thoraceque dense minus profunde impresso-punctatis, elytris subtiliter ruguloso-punctatis. Long. 5½ mm.

This in appearance is very similar to *D. athetiformis* and *D. currax*, but is well distinguished by the sculpture of the head and thorax; the parts of the mouth are elongate and slender, and *D. angustifrons* appears to be the species that comes nearest to *Eudiestota*. There is no carina on the mesosternum. The head is narrower than in the similar forms, and has a small depression on the middle. The male has a long slender spine on each side of the last ventral plate, and between the two about six very slender spines, none of these are sharp, and each one of the middle series is well separated from its neighbours. One specimen.

HAB. Oahu, Honolulu mountains, 2000 ft. 27. X. 1892 under bark (Perkins).

Group 2. Species not more than 4 mm. long. Head coarsely punctured. (In *D. testacea* and *D. aberrans* the coarse punctuation is limited to the back part of the head.)

(4) *Diestota molokaiensis*, sp. nov.

Robusta, nigricans, antennarum basi palpisque fuscis, pedibus sordide rufis, abdomine rufo-piceo; capite fortiter punctato; thorace minus fortiter transverso, medio vage impresso. Long. 3¾ mm.

An obscure insect, not very closely allied to any other; most similar to *D. subplagiata*, the elytra possessing a faint tinging of red. The antennae are short and stout, the penultimate three or four joints very evidently transverse. Head rather narrow, coarsely and closely punctate, dull. Thorax rather narrow, a good deal narrowed behind, coarsely punctate but with a vague depression on the middle, and there obscurely punctate, dull. Elytra rather finely rugose punctate, dull. Mesosternum carinate to the tip. One specimen. A second individual is smaller and narrower; it may be the same species but is in bad preservation.

HAB. Molokai, 4500 ft. 23. IX. 1893; and var.? 4000 ft. 15. VI. 1893 (Perkins).

(5) *Diestota sculpturata*, sp. nov.

Angustula, nigra, haud depressa, omnium fortiter profundeque punctata, elytris rugosis; antennis elongatis, pedibus rufis. Long. 3½ mm.

Plate XVI. fig. 17.

Antennae long and slender, 3rd joint about three times as long as broad, 10th joint not transverse; head narrow, very coarsely punctate. Thorax narrow but transverse, very strongly punctate, deeply depressed on the disc. Elytra with remarkably deep, coarse rugose sculpture. Abdomen with the punctuation more distinct than usual in the Hawaiian *Diestotae*. Mesosternum not carinate.

We have received only two examples of this remarkable little insect. Both are females. It has a good deal the facies of the genus *Bolitochara*.

Hab. Hawaii, Hilo, 2000 ft. on decaying stem of tree *Lobelia*, I. 1896 (Perkins).

(6) *Diestota montana*, Blackb.

Diestota montana Blackb., Tr. Dublin Soc. ser. 2, III. p. 121.

Subdepressa, nigra, antennis, palpis pedibusque testaceis; pube minus brevi vestita, subopaca, capite, thorace elytrisque fortiter profunde punctatis; mesosterno subtilissime carinato. Long. 3 mm.

Head very coarsely and densely punctured. Antennae yellow, but little infuscate, rather short and stout, penultimate joints slightly transverse. Thorax strongly transverse, but much narrower than the elytra, a good deal narrowed behind, extremely densely, rather deeply and moderately finely punctate. Elytra much longer than the thorax, rather coarsely, deeply punctate, the punctures on the disc of each sufficiently distant to leave well-marked, shining interspaces. Abdomen sparingly punctate. Legs obscure yellow, tibiae strongly pubescent.

Terminal dorsal plate in the male with a rather long slender slightly curvate projecting tooth on each side, and between these with seven or eight very minute, regular serrations.

This is nearest to *D. carinata*, but is less depressed and less dull, has a much longer clothing of hairs, and a coarser punctuation. The carina of the mesosternum is elongate, though very slightly elevated. We have received about 21 specimens, most of which are however very much broken. It varies but little; occasionally the antennae are infuscate or blackish, which may be due to post-mortem change rather than variation. I believe the type (or the portion that remains of it) of *D. montana* belongs to this species.

Hab. Hawaii: Hilo, II. 1897; 1800 ft. XII. 1895; on decaying stem of tree *Lobelia*, 2000 ft. I. 1896; (Perkins); Waimea, Hawaii (Blackburn in Brit. Mus. ex coll. Sharp).

(7) *Diestota carinata*, Sharp.

Diestota carinata Sharp, Tr. ent. Soc. London, 1880, p. 41.

HAB. Oahu, Honolulu (Blackburn).

(8) *Diestota incognita*, Blackb.

Diestota incognita Blackb., Tr. Dublin Soc. ser. 2, III. p. 121.

So far as I can judge from the type—which is in very bad condition—this species must be very close to *D. carinata*.

HAB. Hawaii, "a single specimen was taken by beating flowers in a mountain forest on Hawaii," 4000 ft. (Blackburn).

(9) *Diestota robusta*, sp. nov.

Robusta, subdepressa, nigra, palpis fuscis, pedibus sordide rufis; capite fortius punctato, thorace fortiter transverso, dense fortiterque punctato, elytris dense subtiliter ruguloso-punctatis. Long. 4 mm.

Antennae short and stout, penultimate three or four joints transverse. Head short and broad, very coarsely punctate. Thorax short, flat along the middle, quite dull, densely punctured. Elytra much longer than thorax, dull, finely but rather roughly punctate. Legs short; metasternum strongly carinate, the carina extending quite to the tip. The male has a long slender, slightly curved tooth on each side of the hind margin of the last dorsal plate, and between these seven smaller teeth. All the teeth are well separated and blunt at the tip though not knobbed. Five specimens. Also one of a slight variety with rather denser and finer punctuation, and slightly different male characters.

HAB. Hawaii, Hilo, on decaying stem of tree *Lobelia*, 2000 ft. I. 1896; the variety, Kaumana, 2000 ft. I. 1896 (Perkins).

(10) *Diestota occidentalis*, sp. nov.

Nigricans, antennis fuscis, palpis pedibusque sordide testaceis; capite lato, sat fortiter sed parum profunde punctato; thorace elytrisque subtilissime sculpturatis, illo fortiter transverso. Long. $3\frac{1}{4}$ mm.

This is one of the species that exhibits the sculpture of the head as a transition between coarse and fine sculpture: the impressed punctures on it are much less deep than they are in *D. robusta*, but rather more distinct than they are in *D. latiuscula*; from the latter species it is well distinguished by the more slender, slightly longer, tarsi. The mesosternum is not carinate. I have seen only one example, a female.

HAB. West Maui, mts. 4000 ft. from *Freycinetia* in 1894 (Perkins).

(11) *Diestota subplagiata*, sp. nov.

Nigricans, antennarum basi pedibusque fusco-rufis, pedibus sordide testaceis, elytris obsoletissime rufo-plagiatis; capite fortiter punctato, thorace elytrisque subtiliter sculpturatis, opacis. Long. 3 mm.

Antennae short, the penultimate five joints transverse. Head not very broad, with a more distinct punctuation than the thorax. Thorax short, much narrower than the elytra, very dull, finely punctate; elytra much longer than the thorax, finely sculptured, each vaguely longitudinally rufescent near the suture. Legs rather slender, pubescence of tibiae slight. Mesosternum not carinate. Male with a minute, slightly curvate spine on each side of the hind margin of the last dorsal plate, and between them about ten very minute teeth.

Hab. Lanai, 3000 ft. vi. 1894 (Perkins).

(12) *Diestota frontalis*, sp. nov.

Nigricans, antennarum basi palpisque fusco-testaceis, pedibus testaceis, minus opaca, capite sat fortiter punctato anterius nitido, elytris versus suturam late sed vage pallidis. Long. 2⅝ mm.

This is smaller than *D. subplagiata*, it is not so dull, the front part of the head being shining, and the antennae are shorter. The resemblance to *D. lurida* is still greater, but that species has the surface more shining, with more minute punctuation and pubescence, and the large punctures on the back of the head more effaced.

The antennae are short and stout, joints 5—10 transverse. The head has numerous and rather large impressed punctures except on the epistome, where it is smooth and shining. The thorax is closely and rather coarsely sculptured with impressed punctures. The sculpture of the elytra is fine. The mesosternum obscurely carinate. One specimen, probably female.

Hab. Oahu, mountains near Honolulu, 2000 ft., under bark, 27. x. 1892 (no. 47, Perkins).

(13) *Diestota sordida*, sp. nov.

Nigricans, antennarum basi palpisque fusco-testaceis, pedibus testaceis; capite fortiter punctato, thorace elytrisque subtiliter sculpturatis, opacis. Long. 2½ mm.

Closely allied to *D. subplagiata*, but smaller, and the elytra have not the vague rufescent patch of the larger species. The antennae are not so stout as in some of the allied forms, but the penultimate three or four joints are distinctly transverse. The mesosternum is carinate on the anterior part only. The male characters are much the same as in *D. subplagiata*.

Hab. Lanai, 2000 ft. i. 1894 (no. 91, Perkins).

(14) *Diestota kauaiensis*, sp. nov.

Nigricans, antennarum basi palpisque fusco-testaceis, pedibus testaceis; capite fortiter punctato, thorace elytrisque subtilissime sculpturatis, peropacis. Long. $2\frac{1}{4}$ mm.

This differs from *D. subplagiata* as follows: the head and the thorax are a little narrower, the punctures of the head are not quite so large, and there is a very small obscure depression on the middle of the head; the sculpture of the thorax and elytra is very obsolete; the antennae are a little stouter, though the insect is smaller. One female specimen.

HAB. Kauai, Koholuamano, 4000 ft. 15. IV. 1895 (Perkins).

(15) *Diestota puncticeps*, Sharp.

Diestota puncticeps Sharp, Tr. ent. Soc. London, 1880, p. 41.

Is unusually coarsely sculptured all over, but is not in any way to be compared with *D. sculpturata*, and the sculpture and form are very different from *D. carinata*.

HAB. Oahu, Honolulu (Blackburn).

(16) *Diestota testacea*, Kraatz.

Bolitochara testacea Kraatz, Wiegm. Arch. 1859, I. p. 7.

Diestota mayeti Muls. & Rey, Opusc. ent. XIV. p. 194, 1870.

Bolitochara impacta Blackb., Tr. Dublin Soc. ser. 2, III. p. 120.

Plate XVI. fig. 16.

I am indebted for the identification of this species—the type of the genus *Diestota*—to Mons. A. Fauvel, who examined Mr Blackburn's type. The species seems to be very rare; Mr Blackburn found only one specimen; as Dr Perkins met with another example in the same locality after an interval of about 30 years, it would appear to be really an inhabitant of Hawaii.

D. testacea is not at all like any other Hawaiian species; it may be distinguished by its short robust form, rufescent colour, thick antennae, and a more numerous punctuation of the abdomen. As it is the type of the genus we give a figure of our unique—and unfortunately mutilated—example.

HAB. Oahu. "Unique, on the shore near Honolulu" (Blackburn); Honolulu, coast, XI. 1900 (Perkins)—S. France and Ceylon.

(17) *Diestota aberrans*, sp. nov.

Depressa, nigricans, pedibus testaceis, antennarum basi palpisque fusco-testaceis; capite thorace elytrisque subtiliter punctulatis, opacis; antennis gracilibus, articulis penultimis haud transversis. Long. vix $2\frac{1}{2}$ mm.

We have only two immature specimens of this species, but I describe it, as it makes a certain approach to the genus *Atheta*, the metasternal lamina between the coxae being narrower at the tip and more pointed than usual in *Diestota*, while the general facies is very much that of *Atheta*. The antennae are—for the size of the insect—more long and slender than in any *Diestota* except *D. sculpturata*. The coarse punctures on the head can be distinguished behind, though they are very obsolete in front; the head is less rounded at the sides than usual. The thorax is a good deal narrowed behind, and has a broad depression on the middle. The sculpture of the elytra is extremely fine, and their colour is rather dark brown than black, a little paler about the scutellum, but as the specimens are immature this may not be constant. There is a well-marked delicate pubescence of the upper surface, and about the lateral margins of the abdomen the pubescence is markedly longer and more conspicuous and outstanding. The male has a lateral tooth on each side of the hind margin of the last dorsal plate, and several minute teeth between, as in most other Diestotas.

Hab. Kauai, Makaweli, 2500 ft. 11. 1897 (Perkins).

Group 3. Small insects. The punctuation of the head more or less obsolete. (The line of demarcation between Groups 2 and 3 is quite arbitrary, *D. lurida* and *latiuscula* might be placed in Group 2.)

(18) *Diestota lurida*, sp. nov.

Nigricans, pedibus sordide testaceis, elytris disco late testaceo; sat nitida, subtilissime pubescens, capite obsolete punctato, thorace elytrisque subtilissime punctatis. Long. 2¼ mm.

This species, owing to the colour of the elytra and to the sculpture and pubescence, has a very Athetiform appearance, but it appears to be congeneric with *D. subplagiata*, &c. The head has the punctuation obsolete, though the large punctures can still be detected. The thorax is strongly transverse, slightly narrowed behind. The antennae are short and stout, but little different from those of *D. crassicornis*. There is only a trace of a carina on the mesosternum, and the male characters are like those of *D. sordida*, &c.

Hab. Kauai, 4000 ft. vi. 1894 (Perkins).

(19) *Diestota latiuscula*, sp. nov.

Supra subplanata, capite, thorace elytrisque nigricantibus, opacis, obsolete punctatis, abdomine piceo, antennis fuscis basi, palpis pedibusque fusco-testaceis. Long. 3½ mm.

This is a rather broad and flat species, in form more similar to *D. robusta* than to any other, but considerably smaller, paler in colour, with thinner antennae, and very distinct by the sculpture of the anterior parts. The pubescence though scanty is rather long. The antennae are moderately short and stout, the penultimate three joints slightly transverse. The head is moderately broad, very dull; the large impressed punctures—so distinctly seen in *D. robusta*—are present, but very nearly obsolete. The punctuation of the thorax and elytra is also very obsolete. The unique individual is, I think, a female.

HAB. Molokai, 4000 ft., 15. VI. 1893 (Perkins).

(20) *Diestota lanaiensis*, sp. nov.

Fusca, subdepressa, antennarum basi palpisque fusco-testaceis, pedibus sordide testaceis; obsolete punctata breviterque pubescens, capite medio minutissime foveolato, antennis articulis 6°—10° transversis, mesosterno ecarinato. Long. 4 mm.

This is a very Athetiform species; it is less depressed than *D. palpalis* and *latifrons*, to which it is allied by the absence of carina on the mesosternum. The surface is very dull, except that the abdomen is a little shining; there is no true punctuation; there is a very obscure fovea on the middle of the head, but no impression on the thorax. The male has the last dorsal plate truncate behind, almost straight, the margin a little thickened, but destitute of teeth or serrations. One specimen. Very distinct, on account of the male characters.

Though *D. lanaiensis* and the following species are very much alike, and are established each on single individuals (with the exception of *D. mauiensis*, of which I have seen three examples), I believe they will all prove to be valid.

HAB. Lanai, about 3000 ft. 1894 (Perkins).

(21) *Diestota mauiensis*, sp. nov.

Nigricans, supra subplanata, antennarum basi, palpis pedibusque sordide testaceis; capite, thorace elytrisque omnino opacis, subtilissime sculpturatis. Long. $3\frac{1}{4}$—$3\frac{1}{2}$ mm.

Extremely similar to *D. occidentalis*, but with the punctuation of the head quite obsolete. The species is distinguished from the rather smaller forms which follow by the structure of the antennae, of which the 2nd and 3rd joints are subequal in length, and the 4th and 5th almost quadrate, not distinctly transverse: the mesosternum is not carinate: the legs, including the tarsi, are slender. The male has a moderately long tooth on each side on the hind margin of the last dorsal plate, and between them eight small denticles.

HAB. Maui: West Maui, mts., 4000 ft. on *Freycinetia* in 1894, no. 368; Haleakala, 2000—3000 ft., September 1901 (Perkins).

(22) *Diestota rufescens*, Sharp.

Diestota rufescens Sharp, Tr. ent. Soc. London, 1880, p. 42.

A broad insect of brown colour, very dull, the sculpture of the head extremely obsolete, the elytra rather strongly granulate-sculptured.

Hab. Kauai, on *Freycinetia* in the mountain forests (Blackburn).

(23) *Diestota latifrons*, Sharp.

Diestota latifrons Sharp, T. c. p. 40.

I have seen no second specimen of this species. It appears to be closely allied to *D. rufescens*, but not so broad, darker in colour, and with the granules of the elytra not so distinct.

Hab. Kauai, August, 3000 ft. on *Freycinetia* (Blackburn).

(24) *Diestota palpalis*, Sharp.

Diestota palpalis Sharp, T. c. p. 40.

Apparently closely allied to *D. crassicornis* but the antennae are longer, only the penultimate three joints being transverse, and the terminal joint considerably longer.

Hab. Hawaii, Mauna Loa, 4000 ft. near the crater (Blackburn).

(25) *Diestota crassicornis*, sp. nov.

Nigricans, antennarum basi, palpisque fuscis, pedibus sordide testaceis; capite obsolete punctato, thorace elytrisque subtilissime sculpturatis. Long. $2\frac{3}{4}$ mm.

This is smaller than *D. occidentalis* and *D. mauiensis*, and is readily distinguished by the antennae which are much shorter, the 4th joint being small, scarcely so long as broad, the 5th to 10th strongly transverse. The large punctures of the head, though very obsolete, can still be distinguished. Though very similar to *D. sordida, brevicornis* is readily distinguished from it by the thicker antennae and the more obsolete cephalic sculpture. The mesosternum is not carinate. The male has a tooth on each side of the last dorsal plate, and several minute denticles between them, as in many of the allied forms.

Hab. Maui, Haleakala, 5000 ft. October 1896 (no. 661, Perkins).

(26) *Diestota parva*, Sharp.

D. parva Sharp, Tr. ent. Soc. London, 1880, p. 39.

This obscure species must not be confounded with *D. sordida*. It is a little smaller, the length being about 2 mm., the surface is very dull, and the punctuation of the head is more obsolete; the antennae are proportionately shorter and thicker. Our small series is in bad preservation but seems to indicate that this species is rather variable, or else that I have placed more than one under the name.

Hab. Kauai, Oahu, Maui, Molokai, Lanai, Hawaii.—Kauai, 4000 ft. vi. 1894.—Oahu: mountains, in decaying wood (Blackburn); Waianae mts. iv. 1892 (Perkins, one specimen).—Maui, Haleakala, 5000 ft. v. 1896 (Perkins, one specimen).—Molokai, Pelekunu, high forest, 1893 (Perkins, one specimen).—Lanai, off Pua trees, 2000 ft. 1894 (Perkins, one specimen).—Hawaii: Hilo, on decaying stem of tree *Lobelia*, 2000 ft. i. 1896, ten specimens; Kaumana, one specimen; (Perkins).

(27) *Diestota plana*, Sharp.

Diestota plana Sharp, Tr. ent. Soc. London, 1880, p. 38.

This species is certainly very close to *D. parva*, and I should like to see more specimens before I can say that I quite understand these minute Diestotas.

Hab. Oahu, Honolulu, *Freycinetia* flowers on the mountains (Blackburn).

(28) *Diestota clavicornis*, sp. nov.

Minus lata et depressa, nigricans, antennis fuscis, basi palpis pedibusque fusco-testaceis; capite subtiliter obsolete punctato, anterius minus opaco, medio subtiliter longitudinaliter foveolato; prothorace minus transverso, cumque elytris subtilissime sculpturatis et pubescentibus; antennis validis apicem versus fortiter incrassatis. Long. $2\frac{1}{3}$ mm.

This is a distinct little species, the comparatively narrow head, and the very thick antennae, separate it from all the others. *D. molokaiensis*, with a narrow head, is coarsely sculptured. We have only one specimen, its sex is uncertain. The mesosternum is carinate, and the metasternal process between the middle coxae is narrower than usual. This last character distinguishes *D. clavicornis* strongly from *D. testacea*, which though it has somewhat similar antennae differs greatly in nearly all other characters.

Hab. Maui, Haleakala, 5000 ft. April 1894 (no. 125, Perkins).

(29) *Diestota trogophleoides*, sp. nov.

Minus lata et depressa, nigra, antennis fuscis, palpis pedibusque fusco-testaceis; obsoletissime sculpturata et pubescens; prothorace vix transverso, antennis mediocribus apicem versus fortiter incrassatis. Long. vix 2 mm.

This minute form will not be mistaken for any other, in consequence of the narrower and more elongate head and thorax, though *D. clavicornis* to a considerable extent connects it with the rest of the genus. We have only one specimen and I do not think it desirable to take it off the card to examine the under surface.

Hab. Molokai, 21. ix. 1893 (Perkins).

EUSIPALIA, gen. nov.

Pectus breve; coxae intermediae minores, metasterni processus inter eas minus elongatus.

I separate under this name a form with short elytra (probably wingless), approaching closely to *Diestota*, as exemplified by *D. subcarinata*. It differs therefrom not only by the short breast, but also by the smaller middle coxae, the process of the metasternum between them being correspondingly reduced in length. This process runs forward and meets the short mesosternal process, the space at its tip being deeply foveolate. A false appearance of the metasternal process being very short is caused by the deep impression on its anterior part, which at first sight suggests itself as an interval separating the apices of the meso- and metasternal processes.

(1) *Eusipalia brachyptera*, sp. nov.

Nigricans, antennis fuscis, palpis pedibusque sordide testaceis; capite thorace elytrisque obsolete ruguloso-punctatis, opacis; elytris thorace parum longioribus. Long. 2½ vel 2¾ mm.

Distinguished from all the species of *Diestota* by the elytra being slightly narrowed at the shoulders and but little longer than the thorax. The sculpture of the anterior parts is peculiar; it looks as if it were a coarse sculpture nearly effaced. The antennae are rather slender, but the penultimate joints are distinctly transverse. The head is narrow, very dull. The thorax is a little narrower than the elytra, transverse but not strongly so, distinctly narrowed behind, very dull. Elytra flat and depressed, very dull. Abdomen rather shining, but almost without punctuation. Male with a rather long tooth on each side of the hind margin of the last dorsal plate and with several small denticles between them.

One specimen; it measures scarcely 2½ mm. but the abdomen is a good deal contracted. The mesosternum may be obscurely carinate, but the legs nearly hide it.

HAB. Maui, Haleakala, 5000 ft. March, 1894 (no. 381, Perkins).

ATHETA, Thomson.

Atheta Thomson, Skand. Col. III. 1861, p. 61.

(1) *Atheta olaae*, sp. nov.

Minuta, rufo-fusca, ano pedibusque flavis, capite abdomineque ante apicem nigricantibus; antennis brevibus crassis, prothorace leviter transverso; subtilius crebre punctulata et pubescens. Long. vix 2 mm.

A. exilis peraffinis, statura paulo latiore, punctura et pube minus obsoletis discedit.

This little insect may be distinguished from all the smaller Hawaiian *Diestota* by the different thorax, which is longer in proportion to the width. The breast between the middle coxa is very differently formed, the coxae being less widely separated and the space between them formed by a prolongation backwards of the mesosternum, the metasternal prolongation that meets it being very short. The punctuation is a mere delicate roughness of the surface. Although the insect is decidedly variegate, the limits of the tints are very indefinite. Ten specimens, badly preserved.

HAB. Hawaii, Olaa, 1895 (Perkins).

(2) *Atheta coriaria*, Kr.

Homalota coriaria Kraatz, Ins. Deutschl. II. p. 282.

HAB. All the islands. Widely distributed by commerce over the world.

PHLOEOPORA, Erichson.

Phloeopora Erichson, Käf. Mark Brand. 1839, p. 311.

(1) *Phloeopora cingulata*, Sharp.

Phloeopora cingulata Sharp, Tr. ent. Soc. London, 1880, p. 44.

Phloeopora will be easily distinguished from the other Hawaiian Aleocharidae by the elongate, narrow and depressed form, and the prettily variegate surface. The neck is narrower than it is in *Atheta olaae*. *P. cingulata* was discovered by Blackburn on Oahu and Dr Perkins has met with two individuals there. He has also found an example on Lanai that I refer with doubt to this species. It is in bad condition.

HAB. Oahu, Lanai.—Oahu near Honolulu, under bark (Blackburn); Waianae mts. IV. 1892; Waialua coast, IX. 1900 (Perkins).

(2) *Phloeopora diluta*, Sharp.

Phloeopora diluta Sharp, l. c.

I feel doubtful whether this may prove distinct from *P. cingulata*. Having seen but one specimen I must leave the question open.

HAB. Kauai, in decaying wood on the mountains, August (Blackburn).

XENUSA, Muls. and Rey.

Xenusa Mulsant and Rey, Col. France Brévip. Myrméd. 2^{e} partie, 1875, p. 410.

Xenusa pumila, Sharp.

Tachyusa pumila Sharp, Tr. ent. Soc. London, 1880, p. 38.

This little insect will be recognised from most of the other Aleocharidae by the narrow neck and truncate vertex and by its maritime habit. It is not at all likely to be mistaken for any other Hawaiian form except it may be Phloeopora which lives in wood or under bark. Dr Perkins has only found one specimen.

HAB. Maui, Molokai.—Maui (Blackburn).—Molokai (Perkins). Near the sea.

STENAGRIA, Sharp.

Stenagria Sharp, Biol. Centr. Amer. Col. I. pt. 2, p. 237.

(1) *Stenagria currax*, Sharp.

Falagria currax Sharp, Tr. ent. Soc. London, 1880, p. 37.
Stenagria currax Sharp, Biol. Centr. Amer. Col. I. pt. 2, p. 233.

HAB. Oahu, Honolulu (Blackburn).

Fam. HYDROPHILIDAE.

HYDROBIUS Leach.

Hydrobius Leach, Zool. Miscell. 1817, p. 92.

(1) *Hydrobius semicylindricus*, Eschscholtz.

Hydrophilus semicylindricus Eschscholtz, Ent. p. 41; Sharp, Tr. Dublin Soc. III. 1885, p. 218.

HAB. All the islands, on the plains and at various mountain elevations, in both stagnant and running waters (Blackburn, Perkins).

(2) *Hydrobius nesiticus*, sp. nov.

Oblongus, nigricans, vix nitidus, antennis palpisque rufis, pedibus piceo-rufis; elytris striatis, striis fortiter profundeque punctatis. Long. 12 mm., lat. 5½ mm.

This is a very distinct species on account of the deep and coarse sculpture and the very slight development of the mesosternal keel. The head is broader than in *H. semicylindricus*. The arrangement of the sculpture of the elytra is almost exactly the same as it is in *H. semicylindricus*, though the contrast in its coarseness is very striking. Three specimens.

HAB. Oahu, Kawailoa gulch, far up, April 1893 (no. 65, Perkins).

DACTYLOSTERNUM Wollaston.

Dactylosternum Wollaston, Ins. Mader. 1854, p. 99.

(1) *Dactylosternum subquadratum*, Fairmaire.

Cyclonotum subquadratum Fairmaire, Rev. Zool. 1849, p. 412; Sharp, Tr. Dublin Soc. III. 1885, p. 218.

Hab. Kauai, Oahu, Maui, Hawaii.—Kauai, without locality.—Oahu (Blackburn); Nuuanu valley, &c.—Maui; Jao valley, West Maui.—Hawaii, Olaa and Hilo (Perkins). In decaying vegetable matter. Tahiti.

(2) *Dactylosternum abdominale*, Fabricius.

Sphaeridium abdominale Fabricius, Syst. El. I. p. 94; Sharp, Tr. Dublin Soc. III. 1885, p. 218.

Hab. Oahu, Maui, Molokai, Hawaii.—Oahu and Maui (Blackburn).—Oahu; Hawaii, Olaa; Molokai and Maui (Perkins). In decaying vegetable matter. Widely distributed outside the islands.

Omicrus, Sharp.

Omicrus Sharp, Tr. ent. Soc. London, 1879, p. 81.

(1) *Omicrus brevipes*, Sharp.

Omicrus brevipes Sharp, l. c.

This little beetle has not been met with by Dr Perkins. It is much smaller than other Hawaiian Hydrophilidae, being only 1¼ mm. long and 1 mm. broad. It has the facies of a minute *Cyclonotum*.

Hab. Oahu, various elevations, generally in rotten wood (Blackburn).

Cyclonotum, Erichson.

Cyclonotum Erichson, Käf. Mark I. 1837, p. 212.

(1) *Cyclonotum extraneum*, sp. nov.

Ovale, convexum, nigrum, antennarum basi, tarsis palpisque rufis vel piceo-rufis; subnitidum, dense punctatum, stria suturali antrorsum abbreviata. Long. 7¼ mm., lat. vix 4 mm.

This insect has entirely the facies of the species of *Cyclonotum* proper, though it is of unusually large size. It differs from *C. orbiculare*, the type of the genus, by the structure of the mesosternum, the anterior part of the mesosternum having a free tip which projects downwards beyond the posterior part; the posterior part of the process is longitudinally raised along the middle so that the lateral margins are not conspicuous as they are in *C. orbiculare*. The palpi and the club of the antennae are more elongate than in the old species. The punctuation is very evenly distributed and is so close as to detract very much from the polish of the upper surface.

Three specimens from Oahu, also another specimen the label of which though somewhat obliterated I interpret as Kauai 1897.

Hab. Oahu, ? Kauai.—Oahu, Waialua coast V. 1901 and IX. 1900 (nos. 759, 760, Perkins).

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FAUNA HAWAIIENSIS

VOL. III. PART VI.

COLEOPTERA. IV

R. C. L. Perkins, Hugh Scott, and D. Sharp

STREPSIPTERA

R. C. L. Perkins

THYSANOPTERA

R. S. Bagnall

ACARINA

N. D. F. Pearce

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OR THE

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Being Results of the Explorations instituted by the Joint Committee
appointed by

THE ROYAL SOCIETY OF LONDON FOR PROMOTING NATURAL KNOWLEDGE
AND THE BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

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EDITED BY

DAVID SHARP, M.B., M.A., F.R.S.

SECRETARY OF THE COMMITTEE.

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V. COLEOPTERA (VARIOUS).

By R. C. L. Perkins, Hugh Scott, and D. Sharp.

Fam. ANOBIIDAE[1].

The Anobiidae are represented by three genera containing endemic species, and by three genera containing species which are certainly introduced. Of the former, one genus also inhabits the warm parts of America, the other two are endemic. These genera contain, as here described, or listed, 134 species divided as follows: *Holcobius* 12, *Xyletobius* 52, *Mirosternus* (the non-endemic genus) 70. The three other genera contain in all but five species. In addition to these there are, I believe, one or two species representing other genera, which have been quite recently imported into Honolulu. Material is not at hand for the determination of these. So far as my own experience in working out Hawaiian insects is concerned, I have found the large genera *Xyletobius* and *Mirosternus* by far the most difficult of any group that I have undertaken, and I need hardly say that I am far from satisfied with the result, in spite of the great length of time that I have spent on this work. I think that years of careful observations in the field as well as in the study would be necessary for acquiring a thorough knowledge of these difficult insects.

Holcobius Sharp.

Holcobius Sharp, Tr. Ent. Soc. London, 1881, p. 522.

The species of *Holcobius* are much less numerous, and the individuals much less easily procured, than many of those belonging to *Xyletobius* and *Mirosternus*. I have seen one or two of the species flying in some numbers at dark and all are nocturnal. Three of the species have not the form of palpi characteristic of *Holcobius* and will, doubtless, be removed from the genus. The following groups are easily recognized.

---

[1] By R. C. L. Perkins.

Palpi with emarginate terminal joints.
  Pronotum seen from above appearing notched near the front angles....*H. major, simulans, insignis, haleakalae, hawaiiensis, diversus.*
  Pronotum not appearing notched.
    Elytra smooth, shining, glabrous, striae coarsely punctured....*H. glabricollis.*
    Elytra not glabrous and polished, striae distinctly punctate....*H. granulatus, affinis.*
Palpi with terminal joints not apically emarginate....*H. simplex, minor, frater.*

(1) *Holcobius major* Sharp.

Holcobius major Sharp, Tr. Ent. Soc. London, 1881, p. 521.

Varies somewhat in size and in the colour of the antennae.

Hab. Maui: Haleakala, 4000—5000 ft. (Blackburn, Perkins).

(2) *Holcobius simulans*, sp. nov.

H. majori forma colore et magnitudine simillimus, sed pronoto toto opaco, distincte subtiliter sculpturato, interstitiis parum convexis facile distinguendus. Long. 10 mm.

The antennae in the single example are nearly black, excepting the apical joints. The sculpture of the pronotum is extremely fine and dense on the disc, where are a few shallow punctures, the surface very dull, the elytral interstices seem to be even flatter than those of *H. major*.

Hab. Maui: Haleakala, 5000 ft., but not taken with *H. major*.

(3) *Holcobius insignis*, sp. nov.

Statura majore, nigricans, robustus, opacus, antennis plus minus testaceis. Pronotum dense aureo-pubescens, granulatum, lateribus, desuper aspectis, antice quasi emarginatis. Elytra fusco-pubescentia, subfortiter striata, striis punctatis, interstitiis convexiusculis. Long. 11 mm.

Much more robust than *H. major* and *H. simulans* and with the thorax very densely clothed all over with golden pubescence. Punctures on the striae coarser than in most of the allied species, but difficult to see, unless denuded.

Hab. Kauai; 4000 ft.; one specimen.

(4) *Holcobius haleakalae*, sp. nov.

Sordide niger aut fusco-niger, opacus, dense fusco-pubescens, pube sub-aureomicante, antennis tarsisque (ex parte) testaceis. Antennarum articulus 9 ultimo evidenter brevior. Pronotum totum peropacum, subtiliter granulatum, lateribus quasi emarginatis.

Elytra sat dense appressa pubescentia vestita, subtiliter striata, striis punctatis, interstitiis haud convexis, parce subtiliter granulatis. Long. 8·5 mm.

Very like *H. insignis*, but of only about half the bulk.

H. haleakalae var. *chrysodytus* nov.

Pubescentia aurea vestitus.

Apparently not variable, so far as the few examples taken are concerned, except for the golden-clothed variety named above. Sometimes two or three of the intermediate joints of the antennae are infuscate.

Hab. Maui: Haleakala, 4500—5000 ft.; I believe I have also taken it on Oahu.

(5) *Holcobius hawaiiensis*, sp. nov.

H. haleakalae persimilis, sed antennis pedibusque atris, pronoto anterius medium versus minus fortiter granulato distinguendus. Long. 7·5 mm.

I see no characters to distinguish a specimen from Hawaii, excepting those given above. I believe I have since met with the species there, and it is attached to tree-ferns. *H. haleakalae* was found on dead Ohia trees. In certain positions the interstices of *hawaiiensis* seem to be a little convex.

Hab. Hawaii: Kona, 3000 ft.; subsequently also taken at Kilauea.

(6) *Holcobius diversus*, sp. nov.

Sat elongatus, parum robustus, pronoto subnigricante, elytris fusco-brunneis, antennis pallidioribus, minus dense pubescens. Antennarum articulus 4 triangularis, longior quam trans apicem latior, sexto multo brevior; articulus ultimus praecedentibus multo longior. Pronotum subnitidum, supra punctatum, latera versus granulatum, lateribus, desuper aspectis, fortiter quasi-emarginatis. Elytra minus dense pubescentia, sat profunde striata, interstitiis rugulosis striis haud evidenter punctatis. Long. 6 mm.

Very distinct from any of the preceding species and superficially more resembling some of the following, which lack the quasi-emarginate character of the pronotum.

Hab. Kauai: 4000 ft.; one example.

(7) *Holcobius affinis*, sp. nov.

Fusco-brunneus, sat elongatus, antennis testaceis, pubescens. Caput crebre et conspicue granulatum. Pronotum crebre ubique granulatum, lateribus, desuper aspectis, haud quasi emarginatis. Elytra striata, pallide pubescentia, interstitiis dense et minute granulato-asperulis. Long. 7 mm.

Easily distinguished from the very closely allied *H. granulatus* Sh. by its paler colour and the more conspicuous pubescence.

HAB. Hawaii, Molokai, Oahu and Kauai.—Hawaii, Kona, 4000—6000 ft.; Molokai, 3000 ft.; Oahu, 2000 ft.; Kauai, 4000 ft.; bred from dead wood of *Euphorbia* and often seen flying at dark.

(8) *Holcobius granulatus* Sharp.

Holcobius granulatus Sharp, Tr. Ent. Soc. London, 1881, p. 520.

Varies a little in sculpture, the striae being more clearly and largely punctured in some specimens than in others, while the interstices are sometimes slightly convex, sometimes flat.

HAB. Maui, Hawaii.—Maui, Haleakala, not rare in dead Ohia trees; Hawaii, Kilauea, one example.

(9) *Holcobius glabricollis* Sharp.

Holcobius glabricollis Sharp, Tr. Ent. Soc. London, 1881, p. 520.

HAB. Oahu, Maui.—Oahu, scarce at low elevations in the mountains on Koa trees. Maui, Haleakala, 4000 ft., where one or two examples were taken on Koa, but I do not find these in the collection. I have a note of its occurrence and well remember the fact.

(10) *Holcobius* (?) *simplex*, sp. nov.

Fusco- aut atro-brunneus, minus opacus, subtiliter pubescens, antennis tarsorumque apicibus testaceis. Pronotum totum subtiliter punctatum, haudquaquam granulatum, lateribus haud quasi-emarginatis. Elytra levius striata, striis anterius punctatis, interstitiis crebre et conspicue punctulatis. Long. 5·5 mm.

Var. *a*. Niger, antennis testaceis.

Distinguished by the sculpture of the pronotum, the form of the palpi, as mentioned in the introductory remarks. The antennal joints are less elongate than those of *H. major*, *haleakalae* and *diversus*.

HAB. Kauai, Molokai.—Kauai, 4000 ft.; Molokai, 3000 ft. Four examples.

(11) *Holcobius* (?) *minor*, sp. nov.

Minor, brunneus aut fusco-rufus, subtiliter pubescens, parum robustus, antennis testaceis (nonnunquam totis vel ex parte obscuricoloribus). Pronotum subtiliter pubescens, vix nitidum, lateribus haud quasi-emarginatis, versus angulos anteriores obsolete granulatim-rugulosum, supra subtilissime punctulatum. Elytra distincte subtiliter striata, striis impunctatis, interstitiis ruguloso-punctatis. Long. circa 4 mm.

Distinct by its small (but variable) size and otherwise from all but the following.

HAB. Oahu, Molokai.—Molokai, 3000 ft.; since found on Oahu near the coast. Not common.

(12) *Holcobius frater*, sp. nov.

Minor, parum robustus, subtiliter pubescens, fusco-niger (nonnunquam plus minus brunneus aut rufescens) antennis rufo-testaceis, et sat brevibus. Pronotum totum opacum et subtiliter granulatum, lateribus desuper aspectis haud quasi-emarginatis. Elytra subtiliter striata, striis impunctatis, interstitiis obsolete rugulosis. Long. circa 4 mm.

The type of this species is from Kauai, but it also occurs on Oahu. Examples from the latter island, that I have recently taken, generally have the pronotum less dull and granulate than the type and are brighter in colour.

HAB. Oahu, Kauai.—Kauai, 2000 ft.; Oahu, 1200—1500 ft.

XYLETOBIUS Sharp.

Xyletobius Sharp, Tr. Ent. Soc. London, 1881, p. 519.

The species of *Xyletobius* form a number of groups, difficult to define, but readily recognized after a reasonable time spent in the study of a representative collection. Some of these groups will certainly form distinct genera, when they are still further studied. In these descriptions I have not used characters drawn from the underside of the insect, especially the distance between the middle coxae, which is much greater in some (e.g. *X. monas*) than others, because it appears to vary in the sexes of some species. Nevertheless, it will certainly prove an important character. My grouping is largely based on male characters (i.e. the length of the antennae) which is of course unsatisfactory, but, at present, the best method I can discover.

I. Species in which the posterior lateral angles of the pronotum are distinct and not so rounded off as to be effaced. Pronotum always very uneven, raised or tuberculate, so that in lateral aspect the upper outline is angulated towards the middle.......*X. walsinghamii*, *durranti*, *sylvestrii*, *hawaiiensis*.

II. Species with the posterior pronotal angles rounded off and effaced; pronotum very rarely formed as in the preceding section.......All the other species of the genus.

The latter group may be subdivided into a number of sections with the following characters:

(1) Species entirely black, with the antennae very strongly serrate (for the genus), these and the legs black, the elytral striae hardly at all punctured (elytra scantily tomentose and pronotum very little convex above in profile in *X. nudus*).......*X. nudus* and ? *nigrinus* Sh.

(2) Species usually brown of various shades or dull black or dark fuscous, the tomentum always scanty so that the sculpture of the insect is easily seen in dorsal aspect, form elongate, numerous evident punctures can be seen on the striae, second stria always confluent with the third alone at the apex, where they are very distinctly impressed. Pronotum seen in profile with its outline straight or hardly curved or convex.......*X. grimshawi* and *dollfusi.*

(3) Species with elongate or very elongate antennae in the ♂, the several joints before the apical one all strongly elongate and usually very slender.

(*a*) Species large or at least robust, never with yellow elytral spots or fasciae, the elytral striae distinct to the apex, the second confluent with the third only (as a very rare variety the second and third free at apex).......*X. marmoratus*, *meyrickii.*

(*b*) Species not striate as in (*a*), the pronotum anteriorly strongly margined throughout, the margin usually shining.......*X. proteus*, *mesochlorus*, *nuptus*, *pele*, *euceras*, *mimus*, *submimus*, *affinis* Sh. (?).

(*c*) Species not striate as in (*a*), sometimes yellow marked, the pronotum indistinctly or feebly margined in the middle in front; eyes of ♂ of the usual size.......*X. oculatus*, *suboculatus*, *carpenteri*, *ashmeadi*, *blackburni*, *beddardi*, *forelli*, *brunneri.*

(*d*) Species as in (*c*), but the eyes of the ♂ abnormally large, the width of the two together at least subequal to that of the space between them, or sometimes much larger still.......*X. megalops*, *euops*, *insignis*, *kirkaldyi.*

(4) Species with short antennae in both sexes, the several joints before the apical one not strongly elongate in the ♂ and never very slender.

(*a*) Dark markings of elytra so disposed as to make a pattern of several alternate light and dark transverse bands or the elytra are dark with a very conspicuous transverse pale mark on the apical declivous portion; the interstices apically near the suture strongly convex.......*X. euphorbiae*, *cyphus*, *monas.*

(*b*) Elytra with a great brown or golden subtriangular spot of tomentum, extending to the shoulders at the base, and with its apex beyond the middle of the suture.......*X. collingei*, *speiseri.*

(*c*) Pronotum with two conspicuous round spots of pale tomentum.......*X. sharpi.*

(*d*) Elytra with conspicuous yellow spots or bands.......*X. simoni*, *fraternus*, *roridus.*

(*e*) Pronotum in dorsal aspect with the front margin laterally a little prominent (before the deflexed front angles) or rarely angulate or subangulate; not simply rounded; species mostly very small and narrow.......*X. sykesii*, *praeceps*, *mundus*, *aurifer*, *chryseis*, *flosculus.*

(*f*) Pronotum in dorsal aspect with the front margin simply rounded at the sides, not slightly prominently rounded, or subangulate.......*X. scotti*, *stebbingi*, *lineatus*, *serratus* Bl. (?), *lasiodes*, *sulcatus.*

Although in the second part of this table the males alone are actually dealt with, yet in nearly all cases the characters used are also equally applicable to the females. The latter sex, in the sections wherein the males have strongly elongate anteapical antennal joints, also generally has these too slender and elongate to be confused with the males in the other group, having short antennae. Only in two or three cases do the females, that belong to males with long antennae, have these organs with the joints so shortened as to be similar to those males that have the antennae most developed in the other section. *Xyletobius aleuritis* is not included in the table, as I doubt whether it really belongs to the genus.

The measurements of the Hawaiian Anobiidae, here given, are mostly taken from the type specimens. It is only necessary to examine a series of any species to find considerable variation in size, so that this becomes unimportant for specific distinction, unless there is a very considerable difference between that of any two species.

(1) *Xyletobius walsinghamii*, sp. nov.

Statura maxima, sat elongatus, totus dense pallido-tomentosus, antennis rufis aut fuscis. Caput dense tomentosum, oculis majoribus, antennis (praecipue maris) longis, articulo sexto et sequentibus fortiter elongatis, parum serratis. Pronotum perinaequale, juxta medium fortiter elevatum aut tuberculatum, margine laterali ante angulos posteriores exciso, his distinctissimis, haud rotundatim obsoletis, densissime pallido-tomentosum, antice saepius fusco-variegatum, elevatione plerumque nigro- aut fusco-notata. Elytra densissime pallido-tomentosa, lateribus aut ad media aut usque ad apices nigro- aut fusco-limbatis, stria secunda cum tertia sola ad apices confluente. Long. 6·5 mm. var. *minor*, elytrorum dorso multo magis fusco-variegato, statura minore. Long. 4·5 mm.

I have seen only a few examples of this remarkable insect, which is the largest of the Hawaiian *Xyletobius*, and in some respects recalls the genus *Holcobius*. Were it not that it appears to be connected with more ordinary forms by *X. silvestrii*, I should have separated it and its close ally, as forming a different genus. If denuded of tomentum the colour of the insect is usually red, and when thus bare, the elytra show a somewhat deep striation, the interstices being noticeably convex. The larva of this insect is not rare near Honolulu, not only in native woods, but also in introduced dead trees, such as the guava. For this reason I long suspected it of being an introduction from some other country, but the discovery that there is a closely allied species on Kauai and of its relationship to *X. silvestrii*, as mentioned above, sufficiently prove that it belongs to the endemic series.

Hab. Oahu, Maui:—500 to 4000 ft., widely spread and no doubt not rare.

(2) *Xyletobius durranti*, sp. nov.

Forma facieque *X. walsinghamii*, et eisdem modis variabilis, forma pronoti bene distinctus. Pronotum, antice visum, sat fortiter curvatim transverse elevatum, elevatione haudquaquam conico-truncata. Long. 6 mm.

Hab. Kauai; below 2000 ft. to over 4000 ft. in the mountains; no doubt generally distributed, but neglected.

(3) *Xyletobius silvestrii*, sp. nov.

Rufescens, elongatus, subparallelus, plus minus infuscatus, antennarum articulis duobus basalibus aut pluribus rufis, caeteris plus minus infuscatis, pallide tomentosus. Antennae minus fortiter sive mediocriter elongatae, articulo septimo conspicue longiore quam latiore, octavo fere bis longiore quam latiore, sequentibus fortiter elongatis. Pronotum perinaequale, juxta, sive paullo post medium, fortiter elevatum, tomento pallido subvariegatim conspicue vestitum, angulis posterioribus lateralibus distinctis, quamvis obtusis. Elytra fortius striata, stria secunda cum tertia sola ad apices confluente, interstitiis subconvexis, pallide tomentosa, tomento haud laevigato, sed quasi maculas parvas male definitas nitidiores formante. Long. 3·5—4·5 mm.

This species cannot possibly be confused with any other. It is obviously allied to *X. walsinghamii*, but differs in having the sides of the pronotum nearly straight in front of the hind angles, instead of being conspicuously excised, and the angles themselves consequently are less conspicuous. There are many other differences in detail of structure in addition to that of size. This insect seems to be rare, as I have seen only three or four examples, including a pair taken *in cop.*

Hab. Oahu; 2000 ft. or somewhat less.

(4) *Xyletobius grimshawi*, sp. nov.

Fusco-niger, fusco-brunneus aut brunneus, nonnunquam nigricans vitta lata flavescente longitudinali ab humeris elytrorum extensa ornatus, antennarum articulis nonnullis basalibus saepe rufescentibus, caeteris fuscis, pedibus fuscis aut rufescentibus, variabilibus, sat angustus, parce pallide tomentosus. Antennae breviores, sat serratae, articulo septimo minus elongato. Pronotum breve, latum, fortiter transversum, opacum, obscure sculpturatum. Elytra conspicue impressa, striis sat sinuatis, parce tomentosa, stria secunda cum tertia sola ad apices occurrente, ibique plerumque fortiter impressa. Long. 3 mm.

This species varies a good deal but is always easily separable from any other by the following characters. It is scantily tomentose or pubescent, has shortish antennae in either sex (these not differing greatly), the pronotum seen in profile has its upper outline almost straight, hardly or not at all convex. The striation is as described above, and the elytral impressions are always conspicuous. The Kauaian examples tend to form a distinct species, characterized by lighter striation and more elongate elytra. In many specimens these features are very strongly marked, but others are identical with the Oahuan ones, and others are intermediate. The brown or dark fuscous colour of the insect, save in exceptional specimens, is very characteristic.

Hab. Kauai, Oahu.—This Anobiid is more frequently met with than any other in the immediate neighbourhood of Honolulu. A strongly striated example from this range has served as the type of the species.

(5) *Xyletobius dollfusi*, sp. nov.

Fusco-niger, opacus, parce tomento fusco subtilissime vestitus, antennis plerumque nigricantibus, articulo secundo rufescente. *X. grimshawi* evidenter affinis, pronoto supra parum convexo, lato, medio minus fortiter producto, stria elytrorum secunda tertiaque ad apices confluentibus, striis usque ad apices subtiliter punctatis. Statura majore, vestitu, colore, multisque aliis modis subtilioribus distinguendus. Long. 3·75 mm.

The very uniformly dark appearance, and large size gives the above species a very different facies from that of *X. grimshawi*, to which it is closely allied. It is much more bulky than the finely striate and elongate examples of that species from Kauai, and has a finer striation and flatter, wider interstices than the typical Oahuan form. The pronotum, seen in profile, is a little less straight above in outline and the clothing of the elytra has not the same tendency to form pale lines on the interstices. Some examples of *X. dollfusi* are a good deal more elongate than others and seem to me to somewhat connect *X. marmoratus*, a rather isolated species with *X. grimshawi*.

HAB. Hawaii, Kilauea ; apparently rare.

(6) *Xyletobius marmoratus* Sharp.

Xyletobius marmoratus Sharp, Tr. Ent. Soc. London, 1881, p. 517.

Colore variabilis, rufus, rufo-fuscus, rufo-niger aut nigricans, elytris fortius quam in plurimis speciebus impressis, striis fortius sinuatis, secunda cum tertia sola confluente.

I believe I have identified this species correctly from Dr Sharp's description. It varies a good deal in colour, some examples are dark fuscous, becoming distinctly red in parts. Some are not half the size of others, those from Oahu being on the average much less than those from Molokai. The striation (which is extremely distinct right to the apex) is apparently constant and a strong specific character.

HAB. Oahu, Maui, Molokai, Lanai.—Not taken anywhere in large numbers.

(7) *Xyletobius meyrickii*, sp. nov.

Statura majore, niger, flavescenti aut cinereo tomento conspicue vestitus, tibiis tarsisque saepius nigricantibus aut obscure rufis. Caput dense tomentosus, oculis mediocriter magnis, latissime separatis, antennis maris sat fortiter, feminae mediocriter, elongatis, articulo septimo et sequentibus maris valde, feminae conspicue elongatis. Pronotum subaequaliter tomentosum, plagis nonnullis quasi nudis notatum. Elytra minus inaequalibus, leviter striata, stria secunda cum tertia sola conjuncta, aut harum apicibus liberis, stria quarta et quinta ad apices confluentibus, et praecedentibus multo brevioribus. Long. 4·25 mm.

Described from examples in fine condition, some being almost entirely abraded. It is a most distinct species on account of its large size, generally uniform clothing and the condition of the striation, which is almost always constant. The pronotum is not so conspicuously margined in front as in *X. proteus.* The tomentum of the elytra often has a peculiar iridescent or prismatic reflection. The colour of the legs and antennae is not quite constant; one example has the latter largely yellowish.

HAB. Hawaii, on the West side of Mauna Loa from 2000—5000 ft., mostly 4000 ft. or upwards.

(8) *Xyletobius proteus*, sp. nov.

Plerumque major, sat robustus, antennis sat elongatis, capite lateribusque pronoti densissime pallido-tomentosis, pronoti margine antico distincte fortius ubique elevato, nitido. Elytra in forma typica tomento pallido et nigro aut fusco longitudinaliter variegata. Long. solit. 3·5 mm.

The above characters are mostly constant in this very variable species. What may be considered as the typical form has the elytra varigated with longitudinal spots or lines of pale and dark tomentum. By spread of the dark colour or its concentration into certain parts and removal from others, or its partial or total disappearance, various striking varieties, having no superficial resemblance in pattern to the typical form are produced. By the examination of many specimens I have been able to trace the mode of formation of the extreme varieties. The actual colour of the integument (apart from the clothing) varies from entirely red to black.

A few of the most striking varieties of *X. proteus* may be characterized as follows:

X. proteus var. *simplex* nov.

Rufescens aut niger, elytris ubique tomento pallido, cinereo aut flavescente aut aureo, vestitis.

This form probably arises in two ways (1) by the spread of the pale tomentum over the whole surface, (2) by the dark tomentum of the typical form becoming flavescent and the spread of this over the general surface. Varieties in which the elytra are cinereous with light fuscous or yellowish markings may be looked on as intermediate between the typical form and the var. *simplex.* These intermediates are common.

X. proteus var. *maurus* nov.

Elytra nigro- vel fusco-tomentosa, apicibus extremis nonnunquam cinerascentibus.

A dark form, the elytra nearly uniformly dark, the tomentum generally with a ferruginous or golden reflection in certain aspects. About one example in 60 appears to belong to this variety.

X. proteus var. *apicalis* nov.

Elytra supra pallide tomentosa, lateribus fasciaque anteapicali, saepe etiam basi nigricantibus.

In this form, which is numerous, the base of the elytra (usually more widely at the shoulders), the sides, except a space behind the shoulders, and a transverse mark or band near the apex, are black. Rarely this subapical fascia alone is present.

X. proteus var. *dorsalis* nov.

Elytra plus minus pallide tomentosa, post media maculâ magnâ trans suturam positâ ornata, fasciaque subapicali saepe interruptâ.

This beautiful variety is not abundant. Of five hundred specimens counted, only one in fifty belongs to it. I have seen one very good intermediate form, in which the pale tomentum has not been entirely eliminated from the dorsal spot.

X. proteus var. *hastatus* nov.

Elytra nigro- vel fusco-tomentosa, ante media maculâ trans suturam positâ, subtriangulari, pallide tomentosâ ornata.

A very remarkable variation, the pale pubescent spot on the suture being subtriangular (the apex of the triangle in front) and a little produced backwards along the suture.

Only three examples in about 600 examined were of this variety.

X. proteus is apparently found on all the islands, but unless *X. nuptus* be considered a mere variety, it was only found abundantly on Hawaii. The var. *apicalis* has been taken on Kauai in company with *X. nuptus* and I have seen one var. *dorsalis* from Oahu, taken with nearly typical *proteus*.

X. mesochlorus from Molokai reminds one greatly of the var. *hastatus*, but the pale spot is differently shaped, and occupies a different position on the elytra and it is I suspect nearer to *X. nuptus* than to the var. *hastatus* of *proteus*. After the removal of *X. nuptus*, *X. mesochlorus* and *X. mimus* all Hawaiian Anobiids of large size, with very densely tomentose head and sides of the pronotum, with the anterior margin of the latter very definitely raised all round, and shining, with elongate antennae, which do not differ greatly in the sexes, though shorter in the female, may be assigned to *X. proteus*.

HAB. All the islands, but taken only rarely excepting on Hawaii; very numerous on that island near the active volcano Kilauea.

(9) *Xyletobius mesochlorus*, sp. nov.

Nigricans et rufus, sat robustus, forma *X. protei*, capite, pronotique lateribus densissime pallido-tomentosis. Pronotum antice distinctissime marginatum, margine laevi, nitido. Elytra fusco-nigro tomento vestita, macula magna, mediali et transuturali, pallide-tomentosa ornata, strigisque aut maculis aliis paucis pallidis. Long. 3·75 mm.

Form and structure very like that of *X. proteus*, but quite distinct in its clothing from any of the known varieties of that species, and apparently very constant, the five examples taken being closely similar. It reminds one a good deal of the var. *dorsalis* with the general colour of the elytra and that of the dorsal spot reversed. Perhaps it should be considered as a local race of *X. proteus* rather than a distinct species, though at present it is not connected with the ordinary forms of that insect by any intermediates.

HAB. Molokai, singly and rarely, 3000—4000 ft.

(10) *Xyletobius nuptus*, sp. nov.

Rufescens, plus minusve nigro- aut fusco-variegatus, antennarum articulis tribus basalibus plerumque rufis, caeteris nigris. Caput sat dense pallide tomentosum, oculis mediocribus, latissime separatis. Antennae utriusque sexus fortiter elongatae, maris tamen evidenter longiores, articulo septimo circiter bis longiore quam latior. Pronotum latum, antice distinctissime marginatum, lateribus dense pallido-tomentosis, medium evidenter granulatum. Elytra plerumque notis plus minusve elongatis nigris aut fuscis variegata, lateribus versus media saepe macula triangulari aut subtriangulari fusca aut nigra notatis, stria secunda saepe cum quinta ad apicem confluente, haud quaquam cum tertia sola conjuncta. Long. solit. 3·5 mm.

Xyletobius nuptus var. *kauaiensis* nov.

It will be convenient to use this name for the Kauai form of the above, even though the two are not definitely separable in all cases. The variation, so far as I can judge from the specimens collected, is very different on Lanai and Kauai, though certain individuals from each island closely resemble one another. In examples from Kauai the dark elytral markings are usually more elongate and sometimes are so extensive that nearly the entire elytra are black. Near their middle there is in many examples an apparently bare, round, red spot, this being due to the direction of the pubescence and not really to its absence. The smallest examples are hardly one-fourth the bulk of the larger ones.

In both forms the colour of the legs varies from red to dark, and the lateral dark elytral marking, often triangular in shape, may loose its characteristic form by confluence with other dark markings. It becomes a question whether *X. nuptus* is really more than a special form of *X. proteus*. Both on Lanai and Kauai though *nuptus* is the dominant form in various localities, yet on both islands one or two individuals have occurred, that appear to belong to *X. proteus*. It is necessarily difficult to accurately distinguish between species so closely allied, each being very variable, but the average size of *X. nuptus* is much less, it is normally more elongate, and in proportion to its size the antennae of the male seem to be more strongly developed. It is the more typical forms of *X. proteus* that are most like *X. nuptus*.

HAB. Lanai, Kauai.—Probably common as I have examined over fifty examples in all.

(11) *Xyletobius pele*, sp. nov.

Nigricans et testaceus, statura majore, pedibus ex majore parte nigricantibus, antennarum articulis duobus basalibus rufis, pronoto testaceo sive rufescente, medio marginem versus posticum nigromaculato. Oculi mediocres. Antennae sat fortiter elongatae, articulo quinto fortius elongato, quam quartus evidenter longiore, quam sextus multo breviore, articulo septimo et sequentibus gracilibus et valde elongatis. Pronotum latum, antice distinctissime marginatum, margine nitido, partibus nigricantibus exceptis dense pallido-tomentosum, a latere visum supra haud aequaliter convexum. Elytra elongatula, plaga laterali, ab humeris fere ad mediam elytrorum longitudinem extensâ, testaceâ, dense pallido tomento vestitâ, caeteris partibus nigrotomentosis, lineis maculis que nonnullis cinereis variegatis. Long. circa 4 mm.

No doubt distinct from *X. proteus*, possibly the representative on Hawaii of *X. nuptus* of the other islands; the unique example showing an apparently bare red spot on each side at about their middle in dorsal aspect. This bareness is of course only apparent, as in other species. The upper outline in profile of the pronotum is a good deal sinuate, and far from presenting an evenly convex curve. The dark marking on the pronotum is transverse and trilobate. The testaceous elytral markings, covered with pale tomentum, merge into a sanguineous colour (without pale tomentum) on the dorsum. It is quite probable that the unique example may be a remarkable colour variety and that the typical form is more like that of *X. proteus* or *X. nuptus*.

HAB. Hawaii; Kilauea, a single example was taken in July 1895. It is no doubt a male.

(12) *Xyletobius euceras*, sp. nov.

Colore nigro sive nigrofusco rufoque variegatus, facie totâ *X. nupti*, antennis exceptis. Antennae ♂ longissimae, articulo quarto brevi, haud quaquam longiore quam latiore, quinto fortiter elongato, fere bis longiore quam latiore, et praecedentibus permulto longiore, sexto quam quintus conspicue longiore et graciliore, articulis 8, 9 et 10 perelongatis et gracillimis. Long. 3·75 mm.

Differs in no wise, excepting the remarkable antennae, from some examples of *X. nuptus*. The pronotum has the usual strong shining margin of the *X. proteus* group. From Oahu there was a single mutilated, but no doubt originally fine, example of (probably) this species. Its antennae had been torn off and broken up by unskilled mounting and many joints lost.

HAB. Oahu, Lanai.—Lanai, Koele, 2000 ft., a single ♂ taken.

(13) *Xyletobius mimus*, sp. nov.

Sat robustus, totus tomento cinereo aut subflavescente vestitus, pedibus ex magna parte nigricantibus, antennarum articulo secundo et nonnunquam etiam primo rufescentibus. Antennae utriusque sexus fortiter elongatae, maris quam feminae evidenter longiores, articulo sexto quam quintus multo longiore, articulis 9 et 10 maris valde, feminae sat fortiter elongatis. Pronotum latum, ubique granulatum, margine antico toto sat distincte elevatum et nitidum. Elytra latiora, parum aut haud variegata, stria secunda plerumque cum quinta confluente, his tertiam quartamque includentibus. Long. 3—3·5 mm.

Very closely allied to *X. proteus*, but so far as the three dozen examples, that I have examined, show, it is very constant and uniform in appearance. Neither the typical form nor any of the varieties of *X. proteus* was taken in company with it. It differs from this species in being of smaller average size, with the antennae comparatively longer. It is excessively close to *X. submimus*, but is of larger average size than that species, and is more robust, the elytra being broader and less elongate.

HAB. Hawaii on the Western side of Mauna Loa, generally in the lowest forest belt, where introduced ants were absent.

(14) *Xyletobius submimus*, sp. nov.

Niger, haud latus, cinereo-tomentosus, *X. mimo* cognatissimus, differt statura plerumque minore, et forma magis elongata. Long. 2·5—3·25 mm.

This is another of the allied forms, which is separable with some doubt from *X. proteus*, of which it might be a small or degraded variety. It is of much smaller average size, of more elongate form and the antennae are as well or better developed than those of normal *X. proteus*, the sides of the thorax and the head are much less

densely covered with tomentum. From *X. mimus* it is separable by its smaller average size and its more elongate form, the elytra being usually very decidedly longer. In many examples the elytra are slightly, but distinctly, variegated; the tomentum instead of being uniformly cinereous is to a large extent blackish, so that pale lines are formed thereby. The legs are never altogether bright or clear red like *X. proteus*. I have seen not less than forty examples of *X. submimus*.

HAB. Hawaii, Kilauea near the crater.

(15) *Xyletobius affinis* Sharp.

Xyletobius affinis Sharp, Tr. Dublin Soc. III. (Ser. ii) p. 158.

I cannot identify this species with certainty, but I suspect it may be the same as either my *X. mimus* or *X. submimus*, though it is equally likely to be distinct from either. The nature of the anterior margin of the pronotum is of extreme importance in differentiating various species of *Xyletobius*, that are very similar in appearance and resemble *X. affinis*, so until this part is examined I should hesitate to assign any of my species to Dr Sharp's.

HAB. Hawaii, Mauna Loa, 6000 ft. (Blackburn).

(16) *Xyletobius aleuritis*, sp. nov.

Piceo-niger aut fusco-niger, statura magna, vivus, ut opinor, totus pallide tomentosus, antennis mediocriter elongatis, articulis quarto quintoque subaequalibus, sat fortiter elongatis, caeteris usque ad decimum quinto vix conspicue longioribus. Long. 5 mm.

I have only seen two examples, found dead, and much abraded, of this species, which is evidently very different from any other. The pronotum is much less strongly margined in front than in *X. proteus* and its allies, the striation is different from that of *X. marmoratus*, as well as the shape of the pronotum, while the antennal characters seem quite peculiar, in the small amount of dilatation of the fourth and fifth joints. In life the insect is probably almost evenly covered with pale flavescent tomentum.

HAB. Oahu; two examples were dug out of dead Kukui wood (Aleurites) in April 1892. I have never met with a specimen since, and doubt whether the insect is a true *Xyletobius*. It was found at a lower elevation than any other.

(17) *Xyletobius oculatus* Sharp.

Xyletobius oculatus Sharp, Tr. Ent. Soc. London, 1881, p. 519.

I have examined a series of examples that agree very well with Sharp's description of this species. It varies a good deal in size, some examples being nearly twice as bulky as others, but very little in general appearance. The female has much shorter antennae, the 6th, 7th, 8th and 9th joints being only moderately elongate instead of very strongly so.

Hab. Hawaii, Kilauea and Kona.

(18) *Xyletobius suboculatus*, sp. nov.

Niger aut piceo-niger, antennarum articulis duobus basalibus rufis, rarius plus minus obfuscatis, pedibus (exceptis nonnunquam anticis) ex majore parte nigricantibus aut obscurioribus. Oculi minores, latissime separati. Antennae maris valde, feminae mediocriter, elongatae; maris articulo sexto fortiter elongato (praecedente multo majore) et longitudine sequentibus minus inaequali. Pronotum basim versus sat fortiter longitudinaliter convexum, margine antico medio vix aut parum distincte elevato, opacum, dense subtilissime sculpturatum. Elytra sat elongata et angusta, plus minus lineis tomenti cinerei (plerumque parum conspicue) variegata, rarissime unicoloria. Long. 2·5—3·25 mm.

I have examined about 150 examples of this species minutely, and others more superficially. Amongst these are a few, in which the pronotum in part, or wholly, and sometimes the elytra are red or reddish. In some of these examples the legs too are red or yellow. I suspect that the colour of these specimens is due to immaturity, in some it is certainly so. They have much the appearance of some specimens of *X. carpenteri* and perhaps *X. suboculatus* should be considered as a local race of that species. If so, the variation of the two forms is entirely different. To *X. suboculatus* I also refer a few specimens more recently taken on Kauai and Oahu, for I see no characters to distinguish them, in spite of the fact that *X. carpenteri* is found on the intermediate islands. *X. suboculatus* is not very variable, as compared with other species. Some examples have but little variegation of the elytra, but this is very rarely, if ever, entirely absent (unless abraded) and when almost absent, the surface is generally covered with a blackish or fuscous tomentum, not with the grey colour of *X. oculatus*.

Hab. Kauai, Oahu, Hawaii.—Hawaii, Kau and Hilo districts, on Mauna Loa and Mauna Kea.

(19) *Xyletobius carpenteri*, sp. nov.

Niger aut fusco-niger, pronoti marginibus aut margine antico saepe rufo, rare pronoto toto rufescente, elytris juxta media utrinque saepe rufonotatis, antennarum articulis duabus aut pluribus basalibus rufis, pedibus colore variantibus, nonnunquam totis rufotestaceis, nonnunquam nigris vel ex parte nigris, maris tamen fere semper pallidis. Caput opacum, subtiliter granulatum, oculis mediocribus, late distantibus, antennis sat elongatis, maris longitudine elytris subaequalibus, feminae ⅔ longitudinis elytrorum aequalibus, articulo maris sexto cum sequentibus sat fortiter elongato, feminae articulo sexto minus elongato, sed praecedente evidenter majore. Pronotum opacum, lateribus dense pallide-tomentosis. Elytra tomento pallido, plus minus lineas longitudinales formante, variegata, leviter striata, stria secunda cum quinta, vel cum stria quadam exteriore, confluente, et striam tertiam et quartam aut complures alias includente. Long. 3 mm.

Structurally this species is closely allied to *X. beddardi* and others. It is very variable and difficult to describe. The male, as is often the case in the genus, is generally a narrower and more elongate insect than the female though sometimes the sexes closely resemble one another. The pale tomentum of the elytra is nearly always so disposed as to form a number of linear markings; in a few males the surface is so generally covered with pale tomentum or pubescence as to almost obliterate this character. In various parts of the elytra the tomentum is set in different directions, giving it a microscopically roughened appearance, and in some specimens, in consequence of this, there appear to be two well-marked bare red spots near the middle of the wing-cases. This bareness is not real, and many examples show no trace of the red spots. Sometimes there is a good deal of red suffusion of the elytra otherwise. In many specimens a conspicuous patch of pale tomentum is placed on each side of the elytra about the middle of their length. The pronotum is often bordered with red and sometimes entirely red. The legs are variable in colour in the female but in the male are yellow or clear red. The variability seems to affect the species on each island, and even if there is a tendency for the examples from one to vary in a special direction (which is probably true to some extent) yet individuals from each that match each other very well can be picked out without difficulty.

HAB. Lanai, Maui.—Elevations from 1500—5000 ft.; common.

(20) *Xyletobius brunneri*, sp. nov.

Rufofuscus, cinereo- aut aureo-tomentosus, sat elongatus, pedibus flavescentibus, antennarum articulo basali aut rufo aut nigricante, articulo secundo rufo-tincto aut nigro, caeteris articulis nigris. Caput nigricans, antennis ♂ fortiter elongatis, sat serratis, articulo quinto paullo aut haud longiore quam latiore, articulis subapicalibus fortiter elongatis, sed minus gracilibus. Pronotum antice obscurius marginatum, et transversim vel ad medium subdepressum, aureo-tomentosum. Elytra lineis tomenti pallidi conspicue ornata et colore fusco-nigro rufoque plus minus variegata, lateraliter juxta media impressa, parte impressâ rufa, hoc colore nonnunquam ad basim elytrorum extenso. Long. 2·5—3 mm.

I have seen only two males of this species and assign also a single female to it. It belongs to the *X. oculatus* group, not having the distinct anterior margin of the pronotum of *X. nuptus*, some smaller examples of which it greatly resembles, the elytra showing two more distinct red spots on the dorsum towards the middle. The pronotum if viewed from the side, has its upper outline a little sinuate, not simply curved or convex. This is due to the lateral impressions extending right across the pronotum, but the character is much less marked than in well-developed specimens of *X. sulcatus*, of which this is so characteristic a feature. The subapical joints of the antennae of the male, though strongly elongate, are not so slender as is usual in males of this group. What I believe to be the female has much shorter antennae, the eighth joint evidently elongate, the two preceding hardly or not at all so.

HAB. Kauai, 4000 ft.

(21) *Xyletobius ashmeadi*, sp. nov.

Niger, plerumque minus dense griseo-tomentosus, elytris ante media rufo-fasciatis, fascia lateraliter elytrorum basim attingente, post media rufo-bimaculatis. Tibiae nigricantes aut piceae. Antennarum articulus secundus (aliique hujus vicini nonnunquam) rufus. Caput subtiliter granulatim sculpturatum, oculis mediocribus, late separatis. Antennae elongatae, maris toto corpore paullo breviores aut saltem elytris evidenter sat longiores, feminae elytris nonnihil breviores, articulo secundo parvo, subgloboso, tertio intus distincte angulato, quarto pro longitudine sequentibus latiore, haud tamen transverso, caeteris versus apices antennarum longitudine accrescentibus, cunctis (praesertim ♂) elongatis. Pronoti latera desuper visa quasi emarginata, pronoto a latere viso supra fere aequaliter convexo. Elytra leviter striata, stria secunda plerumque cum quinta confluente, et tertiam quartamque includente, haudquaquam cum tertia sola apicaliter conjuncta. Long. 3 mm.

This species is easily recognized by its general appearance. The tomentum is usually more or less flavescent on the red markings of the elytra, and is pretty evenly distributed, so as to give the insect a generally smooth appearance. The five or six terminal joints of the antennae are very elongate, more strongly in the ♂ than in the ♀, and they become more slender towards the apex of the antennae.

HAB. Oahu, 2000 ft.

(22) *Xyletobius blackburni*, sp. nov.

Nigricans aut fusco-niger, capite pronotique lateribus pallide tomentosis, antennarum articulis 2 aut 3 basalibus rufis, tibiis laete testaceis aut rufescentibus, elytris trans basim nigricantibus aut nigro-fuscis, tum fascia transversa pallide tomentosa, post hanc nigricantibus aut nigro-fuscis, apicibus plus minusve pallido tomento ornatis. Caput obscurius granulatum, oculis mediocribus, maris late distantibus, spatio, quod interest, una conjunctis latioribus, antennis sat elongatis, ♂-is elytris longitudine aequalibus, ♀-ae elytris paullo brevioribus, articulis 5 apicalibus sat fortiter elongatis. Pronotum, a latere visum, supra convexum, parum inaequale. Elytra subtiliter striata, stria secunda cum tertia sola apicaliter haud confluente, sed saepe cum quinta conjuncta, et tertiam quartamque includente. Long. 3 mm.

X. blackburni var. *scutellaris* nov.

Elytrorum dimidium basale pallide pubescens, maculam magnam circa scutellum nigricantem includens, post hoc elytra fascia nigricante vel fuscescente irregulari signata, parte apicali pallide tomentosa, plus minus nigro- vel fusco-notata. Pronotum saepius rufescens vel ex parte rufescens.

X. blackburni var. *suturalis* nov.

Elytra, ut in praecedenti varietate, fascia nigricante irregulari postmediana ornata, sutura usque ad basim sat late nigricante, vittam longitudinalem cum fascia postmediali conjunctam formante.

X. blackburni var. *simplex* nov.

Elytra rufescentia, nonnunquam paullo plus minusve fusco-variegata.

Hab. Oahu, 1500—2000 ft.

(23) *Xyletobius beddardi*, sp. nov.

Nigricans, antennarum articulis 2 basalibus vel compluribus rufis, rarius obscurioribus, elytris basim versus rufo-bimaculatis, maculis rufis sub tomento aureo vel flavescenti abditis, tibiis nigricantibus aut obscuricoloribus. Caput subtiliter densius granulatum, oculis mediocribus, late distantibus. Antennae sat fortiter elongatae, maris, quam elytra, distincte longiores, sed elytris pronotoque una conjunctis haud aequales, feminae, quam elytra evidenter breviores, articulo maris sexto cum sequentibus fortiter elongato, feminae articulis eisdem sat elongatis, maris tamen brevioribus. Pronotum, a latere visum, supra convexum et parum inaequale, haud nitidum, pallide tomentosum. Elytra fortius elongata, subtiliter striata, stria secunda cum tertia sola apicaliter haud confluente, sed saepe cum quinta vel cum alia exteriore conjuncta, et tertiam quartamque vel complures alias strias includente. Long. 3 mm.

This species is somewhat variable, and sometimes bears a strong superficial resemblance to *X. ashmeadi.* It is, however, a less smooth insect, with a much duller pronotum, unless this be very much rubbed. The red spots towards the base of the elytra are best seen when the elytra are viewed from the apex; in dorsal aspect the tomentum conceals the colour. They vary in size, and, as the yellow tomentum is developed on them, in some examples nearly the whole basal half of the elytra is covered with this tomentum. The latter fades to greyish, and is usually brighter and more extensive in the females. Towards the apex of the elytra a second pair of inconspicuous red spots is sometimes present, the tomentum behind the anterior spots being dark coloured, as also at the apex of the elytra, this dark tomentum being traversed usually by a more or less extensive arc of pallid tomentum, whether the posterior red

spots be present or not. The tibiae are usually all black or dark, the hind ones are always obscured, not clear red or yellow.

Hab. Oahu, widely distributed, found in the Waianae mountains, as well as in the Honolulu range.

(24) *Xyletobius forelii*, sp. nov.

Niger aut nigro-fuscus, pronoto saepius antice rufescente, rarius toto rufo, elytris plerumque ex magna parte rufescentibus, aut rufomaculatis, rarius totis nigris, antennarum articulis duobus basalibus aut pluribus rufis, pedibus omnibus flavescentibus. *X. beddardi* affinis, angustus, pallide tomentosus. Long. 2·5 mm.

I have only seen a small series of this species and the individuals exhibit a good deal of variety. The tomentum is golden or flavescent in fresh examples, fading to whitish. In the reddest specimens the elytra are black only narrowly along the lateral margins, the black colour becoming a little wider near, or a little behind, the middle. In others this dilatation of the lateral dark colour extends inwards to form a transverse band, and the suture becomes dark, dividing the red colour into four spots of variable size. In two examples the elytra are almost entirely dark. The antennae of the ♂ are very elongate, and formed much as in the allied species, being fully as long as, or a little longer than the elytra, the sixth and following joints strongly elongate, the sixth, as usual, being noticeably wider, in proportion to its length, than the ninth or tenth. The tomentum on each side of the suture before the middle of the elytra is very conspicuously disposed transversely to their length, so that the vestiture does not appear very smooth. The legs are always of a clear yellowish colour

Hab. Oahu, Waianae mountains.

(25) *Xyletobius kirkaldyi*, sp. nov.

Rufescens, angustus, capite nigro vel infuscato, antennis, articulis duobus aut pluribus basalibus exceptis, nigris. Caput minus dense pallide pubescens, dense subtiliter granulatum, opacum. Oculi maris majores, una conjuncti spatio, quod interest, latitudine subaequales. Antennae maris fortiter elongatae, elytris longitudine aequales, aut his nonnihil breviores, articulis sex apicalibus fortiter elongatis, quarto triangulari, vix vel haud longiore quam latiore, quinto elongato; feminae articulo quinto parum elongato, sequentibus, quam maris, evidenter brevioribus. Elytra angusta, elongata, tomento pallido, lineas longitudinales formante, variegata, stria secunda tertiaque ad apices haud confluentibus. Pedibus flavis aut rufescentibus. Long. 3 mm.

Much like *X. carpenteri*, *X. forelii* etc. having the antennae very similarly formed. It does not appear to vary much in general appearance, though sometimes the disc of the pronotum is more or less infuscate and the elytra are, rarely, suffused with black. The female resembles the male in general appearance, but has the eyes much smaller, in fact of the usual size, whereas the large eyes of the male form the chief distinguishing character of the species. There is evidently a slight variation in the length of the antennae and in some males the eyes are rather larger than in others.

OBS. I do not feel certain that I have correctly determined the sexes of this species. Of supposed females there appear to be only two examples, and one of these is doubtful. It is possible that these really belong to some other species and that some of the specimens that I have considered males are really of the female sex. It is certainly unusual to find only one or two females in a series of about two dozen of a *Xyletobius*. Some examples from Kilauea are very small and ill-developed, others are not different from Maui specimens.

HAB. Maui, Hawaii.—Maui, Haleakala; Hawaii, Kilauea.

(26) *Xyletobius megalops*, sp. nov.

Rufescens, capite nigro, elytris et pronoto nonnunquam plus minusve partim infuscatus, antennis nigricantibus, articulis 3 aut 4 basalibus rufis aut flavidis, haud robustus, sat fortiter elongatus, pallide tomentosus. Antennae fortiter elongatae, maris articulo quinto sat fortiter elongato, sexto fere bis longiore quam latiore, septimo quam praecedente longiore, caeteris gracilibus, fortiter elongatis. Oculi maris permagni, capite a fronte viso singuli spatio, quod interest, haud minus lati. Oculi feminae late separati, una conjuncti spatio, quod interest, vix latitudine aequales. Pronotum latum, lateribus densius pallide tomentosis. Elytra fortiter elongata, lineis tomenti pallidi variegata, striis minus conspicue sinuatis. Long. 3·5 mm.

Allied to *X. kirkaldyi*, but readily distinguished by the still much larger eyes of the male. Whether Blackburn's *X. insignis* is allied more closely to this species or the one just mentioned I do not know. Its antennae are different in colour from those of any specimen I have seen of either, and the eyes I should judge from the description to be very likely intermediate in size, perhaps more like the following (*X. euops*). The female of *X. megalops* is very like the male in the antennal structure, but its eyes are much more widely separated and smaller, though a good deal larger than is usual in the genus.

HAB. Lanai, 2000 ft., near Koele.

(27) *Xyletobius euops*, sp. nov.

X. megalopi affinis, sed minor et oculis minoribus distinguendus. Long. 2·5 mm.

I have seen only two examples of this species and cannot decide whether they represent the sexes or not. They are alike in all respects except that the eyes of the one are decidedly larger than those of the other. In the type the eyes (in a front view of the face) are together wider than the space (where narrowest) between them, in the other example they are slightly smaller. They are clearly closer together than in *X. kirkaldyi*, just as they are clearly wider apart than those of *X. megalops*. I should think they represent a distinct species.

Hab. Oahu.—The type specimen was taken in the Honolulu range at an elevation of somewhat less than 2000 ft. I have since procured the second (mentioned above) some fifteen miles from the original locality.

(28) *Xyletobius insignis* Blackburn.

Xyletobius insignis Blackburn, Tr. Dublin Soc. 1885, p. 158.

Blackburn's diagnosis is as follows: "Angustus; dense subtilissime tomentosus; capite nigro, ore prothoraceque rufis; elytris piceis testaceo-variegatis subtiliter striatis, striis plus minusve sinuatis; antennis (toto corpore vix brevioribus), palpis, pedibusque rufis; oculis permagnis. Long. 5 mm."

Blackburn, in his further remarks, adds that "the antennae are entirely of a pale red colour." Though this latter character of itself would not be sufficient to define a species, since several *Xyletobius* present this colour of the antennae as a variation, still I do not feel justified in considering *X. insignis* as identical with either my *X. euops* or *X. megalops* without actual comparison of the types.

Hab. Hawaii, Kilauea (Blackburn) unique.

(29) *Xyletobius euphorbiae*, sp. nov.

Oblongus, sat robustus, fusco-niger aut fuscus, partibus nonnunquam rufescentibus, pedibus antennarumque 2 aut 3 articulis basalibus flavidis aut rubris, dense tomentosus. Caput dense pallide tomentosum, oculis latissime separatis, antennis brevibus, articulo sexto et sequentibus haud aut parum elongatis. Pronotum, desuper visum, haud quasi fortiter utrinque excisum, disco brunneo- aut fusco-tomentoso, lateribus dense pallide tomentosis. Elytra latiora, breviuscula, tomento nigro, fuscoque vestita, fascia tomenti cinerei valde curvata aut angulata juxtà media elytra suturam attingente, post media fascia secunda transversa cinerea, et post hanc saepius fascia, plus minus distincta, flavescente, interstitiis apices versus convexiusculis. Long. 3·5 mm.

This species is very distinct in appearance from any excepting *X. cyphus*, and does not vary sufficiently to present any difficulty in determination. Its transversely banded elytra, the tomentum forming three or four dark and two or three pale bands, are characteristic. Probably the pale tomentum should be considered the ground colour, and the bands are due to longitudinal apposed markings of dark tomentum on the interstices. The latter are a little raised or convex towards their apices. The granulation of the pronotum is very noticeable along the hind margin.

I have examined a good series of this species, but nearly all of these were bred from a small piece of dead *Euphorbia*, brought down from Mauna Loa on Hawaii. Single examples only were collected on Oahu and Lanai. No doubt it is on all the islands, excepting possibly Kauai.

HAB. Oahu, Lanai, Hawaii.—Hawaii, Mauna Loa.

(30) *Xyletobius cyphus*, sp. nov.

X. euphorbiae cognatus, forma, colore et vestitu simillimus, pronoti structura distinctissimus. Pronotum medium nigro-bimaculatum, subbituberculatum, a latere visum haud supra simpliciter convexum sed juxta medium evidenter angulatum. Long. 3·5 mm.

I have seen but one example of this species, which superficially is identical with *X. euphorbiae*. The pronotum, however, is quite differently formed, being strongly raised about the middle, so as even to have a bituberculate appearance; in profile the outline is not an almost simple curve as in *euphorbiae* but the front and posterior half meet at a very distinct angle. The unique specimen had been badly handled in mounting, and its antennae were broken off, but portions of these were found stuck on the ventral surface and, when removed, were found to be similar to those of *X. euphorbiae*.

HAB. Oahu, above 2000 ft., 1892.

(31) *Xyletobius monas*, sp. nov.

Nigricans, plus minus rufo-tinctus, antennarum articulo secundo, tarsisque pallidis, tomento nigricante, aureo-micante vestitus, apices versus elytrorum fascia tomenti pallidi transversa ornatus. Antennae sat breves. Long. 4 mm.

Allied to *X. euphorbiae*, which it resembles in shape and in the subconvex termination of the inner interstices of the elytra. Tenth and ninth antennal joints longer than broad, but not at all strongly elongate in the unique specimen, which is probably a male. Owing to the arrangement of the dark tomentum and irregularities of the surface a number of deep black spots are seen in dorsal aspect of the thorax and elytra. The tomentum has a dark golden or coppery sheen in certain lights. The subapical fascia on the elytra is interrupted by the suture and is very conspicuous, being formed of yellowish tomentum, the surface itself beneath the fascia being pale.

HAB. Maui; one example in the West Maui mountains above 2000 ft.

(32) *Xyletobius nigrinus* Sharp.

Xyletobius nigrinus Sharp, Tr. Ent. Soc. London, 1881, p. 518.

I have not met with this species, which appears to be very distinct.

HAB. Maui, Haleakala, 5000 ft. (Blackburn).

(33) *Xyletobius nudus*, sp. nov.

Niger, haud robustus, antennis pedibusque nigris, subtilissime, parum conspicue, cinereo-tomentosus. Caput parum pubescens, dense subtilissime sculpturatum, antennis longitudine mediocribus, fortiter intus serratis, articulis 3, 4, 5 et 6 transversis, aut saltem haud longioribus quam latioribus, 7 et 8 fere aeque latis ac longis aut paullulo elongatis, 9 et 10 sat conspicue longioribus quam latioribus. Pronotum subnitidum, laeve, subtilissime punctulatum, subtilissime nec dense tomentosum, fortiter transversum, antice distincte marginatum. Elytra subtiliter striata, striis fere impunctatis, distincte sinuatis, interstitiis crebre rugulosis, stria secunda cum tertia ad apices confluente, tomento albido minus conspicuo, sculpturam elytrorum haud celante. Long. 4 mm.

I think this species must be closely allied to *X. nigrinus* Sharp, which I have not examined, but it does not agree in detail with Dr Sharp's full description of that species, and is, I should think, clearly distinct. It is not closely allied to any other known to me. I have seen only the type (which I believe to be a male) and one other example. The latter has the pronotum less strongly transverse and more produced in the middle in front, but is clearly the same species, agreeing in other respects with the type.

HAB. Kauai; 3000 and 4000 ft.

(34) *Xyletobius speiseri*, sp. nov.

Fuscus, antennis fusco-testaceis sive brunneis, pedibus brunneo-testaceis, ubique aequaliter tomentosus. Caput dense tomentosum, antennis brevibus, articulis 3 anteapicalibus minus fortiter elongatis, haud bis longioribus quam latioribus. Oculi majores, sed late distantes. Pronotum latum, plaga dorsali dense aequaliter brunneo-tomentosa, hac plaga utrinque albido-marginata, latera versus cinereo-tomentosum. Elytra utrinque sat evidenter compressa, plagâ brunneâ dorsali magnâ subtriangulari (sive postice attenuatâ) post mediam suturam extensâ, utrinque albomarginatâ, ornata, apicibus latius aureo-brunneis, partibus caeteris cinereo-tomentosis, stria secunda cum tertia sola haud confluente. Long. vix 5 mm.

I have seen only one example of this species, probably a male. It was taken at light. It is allied only to *X. collingei*, but is very distinct.

HAB. Kauai, 4000 ft.

(35) *Xyletobius collingei*, sp. nov.

Fusco-niger aut fusco-rufus, antennis nigricantibus, articulis basalibus haud, aut parum distincte, rufescentibus. Antennae conspicue breves, articulis intermediis haud, apicalibus minus fortiter, elongatis. Pronotum dense granulatim sculpturatum, peropacum, tomento fusco-pallido aut pallido vestitum, maculis compluribus, plus minus distinctis, quasi nudioribus signatum. Elytra albido-tomentosa, plagâ dorsali permagnâ,

postice attenuatâ (sive forma subtriangulari), a basi post media elytra extensâ, colore variabili, sive atro-brunneo sive brunneo-aureo, ornata. Long. 4·5 mm.

This pretty species is closely allied to *X. speiseri*, from which it can be distinguished at a glance by the fact that the remarkable pattern on the elytra is not continued on to the pronotum. In addition to the great brown or golden area, which extends from the base of the elytra, there is generally more or less trace of a subapical band or spot and sometimes the surface is noticeably red in that position. In one specimen the whole elytra appear clothed with uniform whitish tomentum, the pattern having entirely disappeared. This is no doubt due to long exposure, and such specimens would be entirely robbed of their most characteristic appearance.

Hab. Hawaii, Kilauea. I took several examples in 1906, but had never met with it previously. It occurs close to the Volcano house hotel and is attached to *Cheirodendron*, in the bark of which I found it ovipositing. The type is with those of the other species collected by me.

(36) *Xyletobius sharpi*, sp. nov.

Niger, antennarum nonnullis subbasalibus articulis saepius flavescentibus aut rufis, rare omnibus nigris. Corpus minus dense subtilissime albido-tomentosum, pronoto postice macula utrinque rotundata tomenti conspicue flavescentis ornato, elytris ante media fasciâ ejusdem coloris tomentosâ conspicue signatis. Antennae ♀ breves, maris minus fortiter elongatae, articulo 6 et 7 hujus haud fortiter, illius haudquaquam elongatis. Elytra hinc illic leviter sed distincte impressa, distincte striata, stria secunda cum tertia sola ad apices confluente (rare ambarum apicibus liberis). Long. 4 mm.

It is impossible to confuse this remarkable species with any other described form. It belongs to the group of *X. fraternus* and *simoni*. The type specimen alone of the four or five examined appears to be a male and it differs a good deal in the pronotum from the others, this part in dorsal aspect having an appearance of strong lateral emargination. In the females this false emargination is slight or appears only as a light inward sinuation of the lateral outline. I suspect the ♂ is abnormal in this respect. It was taken in company with one of the females.

Hab. Oahu, about 1500 ft. in the Koolau range, and also in the Waianae mountains.

(37) *Xyletobius simoni*, sp. nov.

Niger, antennis colore variabilibus, nigris, fuscis, flavescentibus, aut articulis nonnullis basalibus rufescentibus, caeteris nigris. Elytra fere aequaliter cinereo- aut flavido-tomentosa, plaga circum scutellum magna picea aut nigra, post hanc fascia flavescente, lateribus dilatatis et ad humeros extensis, ornata, post fasciam nigra aut nigrescentia, maculis duabus flavescentibus plerumque magnis signata. Caput parum dense vestitum, antennis brevibus, articulis 7, 8 et 9 vel in mare minus elongatis. Pronotum minus transversum, medium subtilissime punctatum, haudquaquam granulatum, circa marginem posteriorem etiam densissime punctulatum. Striae elytrorum parum sinuatae, apicibus indistinctis plerumque aut obsoletis. Long. 3·5 mm.

A black species with conspicuously yellow-marked elytra, resembling *X. ashmeadi* in appearance. The smooth and uniform covering of tomentum, together with the colour, the very short antennae, and smooth, finely punctate pronotum readily distinguish it from any others. A short series examined.

HAB. Oahu, in both ranges, but chiefly from the Koolau or Honolulu range.

(38) *Xyletobius fraternus*, sp. nov.

Niger, antennis flavescentibus, articulis primo et ultimo fuscis aut nigris, nonnunquam compluribus aliis etiam infuscatis, pedibus plerumque ex magna parte nigricantibus aut piceis, elytris plaga vel macula magna basali utrinque flavida aut rufa ornatis. Corpus totum tomento pallido quasi lanoso vestitum, haudquaquam laevigatim disposito. Antennae breves, articulis 7, 8 et 9 haud fortiter elongatis. Pronotum supra laeve, subtilissime punctulatum, haud granulatum, minus transversum. Long. 3·75 mm.

Very similar to *X. simoni*, but with the minute hairs, forming the tomentum, very irregular in disposition, giving the clothing a woolly appearance. The tomentum is white, but on the basal red or yellow marks of the elytra it becomes yellowish and again tends to form two yellowish spots near the apex. The yellow subapical spots or markings so conspicuous in *X. simoni* are altogether absent or very indistinct.

Xyletobius fraternus var. *laetior* nov.

A single example in my collection from the Honolulu range of mountains is clearly a local race of the above and may conveniently be given a name. It combines with the woolly vestiture of *X. fraternus* the more extensive yellow markings of *X. simoni*, the flavescent tomentum of the anterior pale markings being connected along the suture with the large posterior yellow patches, so that only a small area remains which is covered with white tomentum. Antennae clear yellow, the basal and apical joints dark and the subapical ones subinfuscate. Tibiae yellow or red, much lighter than in the type.

HAB. Oahu, Waianae mountains (typical); the variety, Honolulu range.

(39) *Xyletobius roridus*, sp. nov.

Niger, elytris post basim transverse rufofasciatis, fascia ad latera dilatata, apices versus rufo-bimaculatis, his maculis, fasciaque et pronoto tomento haud laevi, cinereo conspicue vestitis, caeteris partibus elytrorum parum evidenter tomentosis. Antennae breves, articulis 2 aut compluribus basalibus rufis. *X. fraterno* persimilis et affinis, pronoto haud simpliciter punctulato sed subtiliter sat distincte granulatim sculpturato bene distinctus. Long. 3·5 mm.

The coarser tomentum is confined to the pale elytral markings and covers the pronotum except apparently for a nearly bare median longitudinal line (whereon the fine granular sculpture is evident). It is of a somewhat woolly appearance as in *X. fraternus*. Though so like the allied forms I have little doubt *X. roridus* is a distinct species. I have seen only two examples.

HAB. Oahu, Waianae mountains.

(40) *Xyletobius sykesii*, sp. nov.

Statura minore, angustus, elongatus, elytris subfortiter inaequalibus, tomento quasi irregulariter vestitis, nigricans, thorace et nonnunquam aliis partibus piceis aut rufotinctis, antennarum articulis nonnullis basalibus rufescentibus, pedibus pallidis, rufis aut flavis. Oculi minores. Antennae sat breves, articulo sexto et sequentibus parum fortiter (♂) aut haud elongatis. Pronotum quasi irregulariter aureo- aut argenteo-tomentosum desuper inspecto, margine antico juxta angulos laterales nonnihil utrinque prominulo. Elytra angusta, conspicue quasi irregulariter tomento saepius fusco, aureo-nitente, vestita, post apicem striae primae suturam juxta plerumque subfoveata. Long. 2·75—3·25 mm.

In its typical condition this species is very characteristic, by its narrow form, golden clad thorax, and dark tomentum of the elytra, which shines in certain lights with golden or other bright reflections. This tomentum, owing to the irregularities of the surface of the elytra, appears to leave bare spots, the shape and appearance of which change in different aspects of the insect. In some examples the elytra have golden tomentum, that on the thorax being then still paler or silvery.

Xyletobius sykesii var. *molokaiensis* nov.

Formae typicae persimilis, sed plerumque brevior, pronoto compluribus impressionibus fortioribus signato, distinguendus.

This should perhaps be considered as a distinct race or subspecies rather than a mere variety. The tomentum though variable in depth of colour is for the most part similar on the pronotum and elytra, being golden or silvery or golden-fuscous.

HAB. Oahu, Molokai, Lanai, Maui, Hawaii.—The type form is from Hawaii. Usually not common. I have seen 40 or more specimens mostly from Hawaii.

(41) *Xyletobius praeceps*, sp. nov.

Niger aut fusco-niger, pedibus antennarumque articulis 3 basalibus aut compluribus rufescentibus aut flavescentibus. Caput albido-tomentosum, antennis brevibus, articulis 4—9 latis. Pronotum, desuper visum, medium nigro-fusco-tomentosum, lateribus dense albido-tomentosis, margine antico versus angulos laterales sat fortiter (nonnunquam angulariter) explanato sive prominente. Elytra nigro-fusco-tomentosa, hinc illic plus minus ferrugineo- aut aureo-nitentia, lateribus tomento argenteo (plus minus aureo commixto) vestitis. Long. 3·5 mm.

Evidently allied to *X. sykesii* and its allies, the elytra shorter than in most of these and less uneven. Tomentum for the most part dark fuscous with golden or ferruginous reflections, but silver or mixed silvery and golden on the sides of the pronotum and of the elytra. Pronotum angulate at the sides or almost so, in dorsal aspect, owing to the anterior margin being explanate before attaining the lateral angles.

I have seen but two examples taken together in June 1896, one of which is more slender and only half the bulk of the other, though probably both are females. They are obviously of the same species and otherwise differ very little except in minute details of vestiture. The pronotum is much smoother and the colour of the clothing utterly unlike that of *X. sykesii molokaiensis*, which is found in the same locality, while the elytra also are not conspicuously impressed.

HAB. Molokai, about 3000 ft.

(42) *Xyletobius mundus*, sp. nov.

Brunneo- sive fusco-niger, capite cinereo-tomentoso, pronoto elytrisque tomento simili fusco, aureo-micante, vestitis, horum lateribus dense argenteo-tomentosis, pedibus flavis, antennis articulis nonnullis basalibus rufescentibus. Long. 3 mm.

Evidently closely allied to *X. sykesii*, but very different in superficial appearance from the dark fuscous tomentum on the pronotum, resembling that on the elytra and the other differences in the latter, as noted in the diagnosis. The anterior margin of the pronotum near the lateral angles is strongly prominently rounded or explanate, of the same general form as that of *X. sykesii*. The three or four joints preceding the terminal one of the antennae are more elongate than in any examples of that species. It is however possible that it may prove a local form of *X. sykesii*, although that insect in its typical condition or in one rather approaching the var. *molokaiensis* is found on Oahu.

HAB. Oahu, about 2000 ft. One example only taken.

(43) *Xyletobius aurifer*, sp. nov.

Piceus aut fusco-niger, antennarum articulis basalibus pedibusque flavis aut rufescentibus. *X. sykesii* affinis, sed minus angustus, elytris pronotoque tomento aureo concolori vestitis, illis minus fortiter impressis distinguendus. Long. 3 mm.

Shorter and wider than *X. sykesii* (typical), the pronotum much less uneven than in the var. *molokaiensis*, the clothing of tomentum more uniform in colour, this form is at present to be regarded as a distinct species. Nevertheless future observations may prove it to be no more than a constantly occurring variation of *X. sykesii*, some examples of which evidently approach it more closely than others.

HAB. Hawaii, Kilauea.

(44) *Xyletobius chryseis*, sp. nov.

Parvus, elongatus, angustus, dense aureo et fusco-aureo tomento vestitus, pedibus antennarumque articulis basalibus flavis aut rufis, antennis brevibus. Margo pronoti, desuper visi, anticus juxta angulos laterales fortius prominulus sive explanatus. Elytris minus fortiter inaequalibus. Long. 2·5 mm.

Closely allied to *X. sykesii* but smaller, the surface less uneven and consequently appearing more regularly clothed. Pronotum in dorsal aspect with the front margin rather strongly prominent or explanate at the sides. The tomentose covering is more like *X. aurifer* than that of *sykesii*, but the former is at once separated by its much wider form.

HAB. Oahu, Waianae mountains, about 2000 ft. I have only seen half a dozen examples, obtained together and showing no variation.

(45) *Xyletobius scotti*, sp. nov.

X. sikesii subsimilis, angustus, parvus, tomento argenteo aut pallide aureo vestitus, nigricans aut fusco-niger, pedibus pallidis, flavescentibus, antennarum 2 aut 3 articulis basalibus flavis aut rufis, pronoto antice, nonnunquam etiam postice, rufescente, elytris juxta humeros supra rufomaculatis. Antennae sat breves, articulo sexto et sequentibus aut transversis aut parum elongatis (maris quam feminae paullo longioribus). Pronotum, desuper adspectum, fere simplex, lateribus levissime concavis, haud subfortiter quasi excisis, margine antico versus angulos laterales haud evidenter prominulo sive explanato. Elytra et pronotum tomento fere simili colore vestita. Long. 3 mm.

The tomentum on the elytra, as in *X. sikesii* and its allies, is conspicuously irregular, some of the short hairs of which it is composed being directed transversely inwards, some outwards, while some are longitudinal in direction, some of the striae a good deal sinuate at the elytral impressions. The species is quite distinct from any of these by the more regular pronotal outline laterally, as described above. The single example from Molokai has the tomentum pale golden, rather than silvery, but otherwise seems identical with three examples from Hawaii, which show no noticeable variation. With these, however, was taken an example of a uniformly brown colour, which may be known as var. *castaneus*.

HAB. Molokai, Hawaii.—Hawaii, Kilauea, Molokai, 3000 ft.

(46) *Xyletobius flosculus*, sp. nov.

Parvulus, angustus, rufescens, capite nigricante, pedibus antennarumque articulis 2 basalibus aut compluribus pallidis, totus aureo tomento aequaliter et laeve vestitus, antennis brevibus. *X. chryseidi* cognatissimus. Long. 2·5 mm.

Allied to *X. chryseis*, but readily distinguished by the very uniformly distributed pale golden pubescence, the surface of the elytra being smooth, the tomentum not at all rough or shaggy. Elytral striae invisible in perfectly fresh examples, the tomentum concealing them. Pronotum formed as in *X. chryseis* and allies, the front margin towards the sides a little produced or with a rounded explanation in dorsal aspect.

HAB. Hawaii, Kilauea; a single example taken on each of three occasions.

(47) *Xyletobius stebbingi*, sp. nov.

Minus fortiter angustus, parvulus, niger, dense tomento argenteo aut pallide aureo ubique vestitus, antennis sat brevibus, articulis basalibus pedibusque rubris. Pronotum dense tomentosum, medium postice plaga quasi nuda magna nigricante signatum, margine antico versus angulos laterales haudquaquam explanatim prominulo. Elytra peraequaliter tomentosa, haudquaquam variegata, leviter striata, striis parum fortiter sinuatis. Long. 3 mm.

Remarkable amongst the species with short antennae for the very uniform and regular clothing of the elytra, on which the tomentum lies in a very even manner, and is neither variegate from differences in colour of the clothing, nor from inequalities of the surface. The pronotum is of a simple form, not appearing excised laterally as in the *X. sykesii* group, nor with the front margin laterally prominent in dorsal aspect. Three examples taken.

Xyletobius stebbingi var. *notatus* nov.

Paullo major, elytris circa aut post media plus minusve fuscescentibus.

I have seen four examples taken on Molokai, which I refer to this species as a local race or variety. They are not in very good condition, but the tomentum of the elytra is generally slightly darker in tint than in the type form and near or behind the middle there is a more or less distinct fuscous band or marking, caused by a change of colour in the tomentum. A specimen with rufescent elytra taken with the others is also clearly the same species.

HAB. Molokai, Hawaii.—Hawaii, Kilauea; Molokai, 3000 ft., the variety.

(48) *Xyletobius lineatus* Sharp.

Xyletobius lineatus Sharp, Tr. Dublin Soc. 1885, p. 159.

This species, if I am correct in my identification, is one of the most abundant of all *Xyletobius* and very variable in colour. It is particularly abundant on the uplands of Hawaii, but occurs on all the islands. On Maui only a few examples were collected and hardly any I think on Lanai or Molokai, but the specimens from these three islands were so roughly handled in mounting by not very skilled workers, as to be spoiled for practical purposes. From Oahu and Kauai good specimens were available.

Specimens from the West side of Hawaii at elevations of 3000—5000 ft. or more are generally darker than those from 4000 ft. on the other side. Four individuals in 120 examined from the former locality are entirely black, while from the other side only one in over 1500 is of this variety. It is convenient to name this melanochroic form:

X. lineatus var. *holomelas* nov.

Niger, antennis pedibusque nigris.

Another very distinct form has the elytra black and is broadly red on the apical portion and may be called var. *apicalis*.

X. lineatus var. *apicalis* nov.

Elytris nigris aut nigricantibus, apicibus late longeque rufis, ibique pallide tomentosis.

This variety was rarer on the West side, only two examples in 120 examined were discovered. From the other side 1100 were counted, one in twenty being var. *apicalis*.

On Oahu most of the examples were very small and narrow, but some occurred with these that were inseparable from some individuals taken on Hawaii and others on Kauai. No var. *apicalis* was found.

Some of the Kauai specimens were large and with a tendency to greater elongation of the antennae, some identical with those from Maui and Oahu.

The species as a whole is excessively close to *X. lasiodes* and the latter may be only a race or variety, yet the different character of the pubescence or tomentum on the elytra readily separates the two, unless it be in very exceptional cases. The variation of the two forms is very different.

One other very remarkable variety I was for some time inclined to consider of specific rank, but I have since found it to be connected with the typical form. I herewith diagnose it as follows :

X. lineatus var. *humeralis* nov.

Niger, elytris nigris, nigro aut fusco-nigro tomento vestitis, utrinque macula magna rufa humerali fere ad suturam extensa et plagam circumscutellarem nigram includente, conspicue ornatis, his maculis rufis pulchre aureo-tomentosis, parte apicali elytrorum nigra saepe paullo tomento pallido variegata.

Hab. Kauai, Oahu, Maui, Molokai, Lanai, Hawaii.—From 1500 ft. to 6000 ft. above sea-level.

(49) *Xyletobius serricornis* Blackburn.

Xyletobius serricornis Blackb., Tr. Dublin Soc. 1885, p. 159.

This will probably prove to have been described by me under another name, unless, as is quite likely, it is a variety of *X. lineatus*, perhaps the other sex. *X. lasiodes* is, doubtless, common on Lanai, and it may be one of the forms of that very variable species. Except that *X. serricornis* is said to have the antennal joints more serrate, I see nothing in Blackburn's description to separate this from *X. lineatus*, as described by Sharp.

Hab. Lanai (Blackburn).

(50) *Xyletobius lasiodes*, sp. nov.

Niger, aut rufescens, aut particolor, pedibus flavis aut rufis, antennarum articulis basalibus 2 aut compluribus basalibus rufis aut flavis, caeteris nigris aut nigrofuscis. Antennae breves, ut in *X. lineato* formatae. Pronotum dense aureo aut argenteo tomento vestitum, margine antico, desuper viso, simpliciter rotundato, haud angulos versus laterales prominulo, a latere visum supra simpliciter sat distincte curvatum sive convexum. Elytra dense conspicue aureo aut pallido tomento vestita, hoc parum evidenter lineas pallidas formante, nec levissimo. Long. 2·75 mm.

Differs from *X. lineatus* Sh. in the conspicuously rougher tomentum, showing little tendency to form distinct pale lines on the elytra. Specimens from Lanai are sometimes very large and with rather more developed antennae. There is a var. *apicalis* corresponding not to the var. *apicalis* of *X. lineatus*, but to that of *X. sulcatus*, the apical red colour being deeply excised in front. When the elytra are entirely red this *apicalis* variety may still occur, the apical red colour being paler than the other.

Hab. Oahu, Lanai and no doubt also on the other intermediate islands.—Common and widely distributed, occurring close to Honolulu and in all other localities on Oahu.

(51) *Xyletobius sulcatus*, sp. nov.

Rufescens, plerumque plus minus nigro- aut fusco-variegatus, aut niger plerumque plus minus rufo-variegatus, antennis nigris aut nigrofuscis articulis 2 aut pluribus basalibus rufis, pedibus rufis aut flavis, conspicue pallide tomentosis. Antennae ♂ breviores, articulis subapicalibus elongatis, sed latioribus, haud gracillimis. Pronotum latum, antice transversim conspicue impressum, a latere visum supra sinuatum, haud simpliciter convexum, pallide tomentosum. Elytra plerumque tomento albido aut aureo variegata, saepe rufescentia et circum suturam plus minus nigricantia aut infuscata, rare nigra aut fere nigra, saepe fere tota rufescentia aut rufa, lineatim plus minus infuscata. Long. 3 mm.

X. sulcatus var. *apicalis* nov.

Elytris nigris, supra tomento nigro aut nigro-fusco vestitis, apicibus rufis.

This very variable species is allied to *X. lasiodes*, but is easily distinguished by the transversely impressed front portion of the pronotum. This impression itself varies in strength and distinctness, but is always apparent. Otherwise, apart from colour, there is some variation in the development of the antennae, which are rather longer in some examples than in others, especially in the males.

HAB. Kauai, 2000—4000 ft.; common and probably ubiquitous in suitable parts of this island.

(52) *Xyletobius hawaiiensis*, sp. nov.

Sordide rufo-fuscus, antennis pedibusque nigricantibus, sat dense pallide tomentosus, *X. walsinghamii* v. *minori* affinis. Pronotum perinaequale, medium fortiter elevatum, marginibus ante angulos posteriores levissime concavis. Elytrorum interstitia convexiuscula, stria 2 et 3 ad apices confluentibus. Long. 4 mm.

This species is described from a single specimen, which having been smeared all over with gum was not recognized as distinct, till after I had completed my manuscript of the genus. It is nearest to *X. walsinghamii* var. *minor*, next to which it should be placed, and from which it is readily distinguished by its much smaller size and black legs and antennae.

HAB. Hawaii, Kona, 2000 ft.

ANOBIUM.

Anobium paniceum L.

HAB. Oahu and probably the other islands.

LASIODERMA.

Lasioderma serricorne F.

HAB. Hawaiian islands, generally distributed and injurious.

CATORAMA.

(1) *Catorama mexicana* Chev.

HAB. Oahu, Maui, Hawaii and no doubt the other islands.

(2) *Catorama pusilla* Sharp.

Catorama pusilla Sharp, Tr. Dublin Soc. 1885, p. 160.

HAB. Maui (Blackburn). I do not remember having noticed this species, but I paid very little attention to the introduced Anobiids of which there are other species now present in Honolulu.

MIROSTERNUS Sharp.

Mirosternus Sharp, Tr. Ent. Soc. London, 1881, p. 526.

The species of this genus, which, though described originally from Hawaiian specimens, is also found in the central parts of America, are numerous in the islands and extremely difficult to distinguish from one another. They are also very difficult to expand for purposes of examination, and are, unless the greatest care is taken, very easily damaged in the process. No doubt, with specimens recently captured this difficulty would be comparatively slight, but in the case of those kept in carbolized boxes for years before manipulation it is extreme.

The four most important characters are (1) the size of the eyes, (2) the form of the antennae, (3) the structure of the metasternum, (4) the general sculpture and clothing. Each of these characters is unfortunately subject to vary both individually and according to sex. Thus the eyes may be nearly the same size in both male and female of a species or entirely different; a carina may be well-developed on the metasternum of the ♂, and feeble or absent in the ♀, and the antennae may be nearly alike in both sexes or very different, according to the species; so too, the puncturation varies sexually and individually.

I herewith have made some attempt to group the species on the first and last of the above mentioned characters, but such grouping is not altogether natural. It is so to a considerable extent, in that many evidently allied species fall naturally together and it may serve, though very imperfectly, for the more ready discrimination of the species. It is based essentially on male characters and often will not be correct for examples of the female sex.

I. Eyes always of enormous size at least in the ♂, the width of one of these never less than the space, where least, between them, and often very much wider than this space.

(*a*) Species chiefly testaceous or ferruginous in colour.......*M. oculatus*, *testaceus*, *punctatissimus*, *excelsior*, *pyrophilus*, *basalis*.

(*b*) Species black, dark brown, or piceous.......*M. sordidus*, *hawaiiensis*, *frigidus*, *epichrysus*, *duplex* (♀ with small eyes), *lanaiensis*.

II. Eyes rarely so large that the width of one in the ♂ is subequal to the space, where least, between them, usually widely separated and often of comparatively small or moderate size (*M. muticus* ♂, *discolor* ♂ and a few others approach *M. lanaiensis* in the size of the eyes, so that there is no abrupt division between these sections and *M. nigrocastaneus* should perhaps be placed in the first, though I have included it in Div. II.).

(1) Elytra above (i.e. not considering the deflexed lateral parts) always with an extremely sparsely punctured, glabrous, or almost bare area on the more basal part at least, sometimes with the whole or almost the whole surface glabrous or nearly and extremely few punctures, or in a condition intermediate between these extremes; surface of the glabrous or subglabrous part usually polished, rarely dull and with fine rugulosity, the very remote punctures of the glabrous portion often of rather large size (compared with parts densely punctured) and feebly impressed.

(*a*) Elytra either with no dense puncturation or only so punctured more or less narrowly along the suture or on the basal margin or on both basal and sutural margins.

(*a*′) Basal joint of the antennal club, at least in the ♂, of unusual form, elongate and very narrow.......*M. kauaiensis*, *molokaiensis*, and *ignotus*.

(*b*′) Insects brightly marked black and yellow.......*M. xanthostictus* and *bicolor*.

(*c*′) Species not as in (*a*′) and (*b*′).......*M. affinis*, *montanus*, *rugipennis*, *simplex*, *denudatus*, *latifrons*, *irregularis*, *maurus*, *laevis*, *fractus*, *parvulus*, *eutheorus*, *nigrocastaneus*, *angulatus*, *pallidicornis*, *glabripennis*, *peles*.

(*b*) Elytra with an extremely dense puncturation on the apical portion, extending far outwards from the suture, sometimes to the lateral margins.

(*a*′) Elytra with excessively minute whitish tomentum on the apical portion, in front of this with a patch or band of coarser yellow or golden pubescence.......*M. blackburni*, *blackburnioides*.

(*b*′) Elytra not so clothed.......*M. sculptus*, *varicolor*, *lugubris*, *pusillus*, *parcus*, *subparcus*, *amatus*, *cognatus*, *konanus*, *hypocoelus*.

(2) Elytra above without a glabrous and extremely sparsely punctured area near the base, sometimes densely punctured all over, or all but a space along the lateral margins, and often nearly evenly pubescent all over. In some species the punctures are noticeably less dense on the part between the densely punctured apical part and the extreme base, but the punctures are never extremely sparse and remote. Sometimes the puncturation, though sufficiently dense, is shallow and indefinite.

(*a*) Antennal club large in the ♂ or with the first or first and second joints in some aspects subquadrangular.......*M. eximius*, *solitarius*, *punctatus* (?), *amaurodes*, *elongatulus*, *discolor*, *muticus*, *carinatus*, *acutus* (?), *lugubris* var., *plebeius*, *dubiosus*, *tetragonus*, *rufescens*, *marginatus*.

(*b*) Antennal club moderate or small, or with the basal joint unusually elongate for its width....... *M. tristis*, *vestitus*, *varius*, *debilis*, *hirsutulus*, *stenarthrus*, *dimidiatus*, *obscurus*, *solidus*.

In this table the species likely to cause most difficulty are (*a*) those in which the eyes are unusually large, but not so greatly developed as those in section I; species most likely to cause difficulty are *M. nigrocastaneus* and *M. discolor*, which might almost be placed in the first division: (*b*) species in which the puncturation is of a feeble and indefinite character or variable, e.g. *M. maurus*, *lugubris*, *varius*, *discolor* and a few others, which, either from individual variation, or from ill-definition of the sculpture, it is hard to tell whether to refer to (1) I or to I (2). Fortunately these difficult forms are, when all told, comparatively few. The pubescence is of great value in deciding the position of a species, for when it is markedly distinct immediately along the suture behind the base of the elytra and very scanty external to this, such a form will be placed under I (1); when fairly regular in distribution, even though not at all dense, the species so clothed will fall under I (2). Unfortunately the clothing is subject to abrasion, when the antennae are being extracted, and this abrasion usually occurs a little behind the base, in fact on the most critical part of the insect. In these cases most careful examination of the puncturation is necessary. If the punctures are very few and of unusually large size and very shallow, the species should be placed in I (1). Species like *M. debilis* (or at least examples that I refer to *debilis*) clearly belong to I (2); so too does *M. lugubris* ♂, though I have placed it under both sections, since it varies in sculpture.

Although I have obtained a good many *Mirosternus* in various localities since I ceased to collect for the Sandwich Islands Committee, I have (with one exception) not considered these specimens in the present paper. I have been much struck with the entire absence of distinct new forms in those recently collected, and, I may say, that so far from throwing light on the species here described, these later specimens will greatly increase the difficulty of distinguishing the species, there being either a number of new species excessively closely allied to those here described, or forming variations of a most perplexing nature.

(1) *Mirosternus oculatus*, sp. nov.

Ferrugineus aut testaceus, oblongus, capite et pronoto nonnunquam sordidioribus, antennarum clava nigricante aut fuscescente. Oculi permagni, singulis spatio frontis intermedio duplo latioribus. Antennarum clava permagna, articulo primo triangulari, angulo interno haud acuto, apice producto. Caput et pronotum pallide pubescentia, hoc nitido subtilissime nec distincte punctato. Elytra pallide pubescentia, sat nitida, subtiliter, subaequaliter, parum fortiter punctata. Long. 3·5 mm.

In some examples the suture and lateral margins of the elytra are dark. The pubescence of the elytra is not dense, but in fresh examples is evenly distributed over their dorsal surface. The puncturation is rather stronger in some examples than in others. The metasternum is strongly carinate in front.

HAB. Kauai; 3000—4000 ft.

(2) *Mirosternus testaceus*, sp. nov.

Praecedentis forma et colore, elytris parum pubescentibus, circum suturam rugulosis vel ruguloso-punctatis, caeteris partibus parcissime punctatis distinguendus. Long. 3·5 mm.

Distinguished from the preceding by the sculpture of the almost glabrous elytra. This sculpture varies in intensity. The basal club joint sometimes appears subquadrate rather than triangular but this is not constant, the antennae of the same example not always appearing alike in this respect.

Hab. Kauai, 3000—4000 ft.

(3) *Mirosternus punctatissimus*, sp. nov.

Praecedentibus forma et colore simillimus, elytris usque ad margines et partibus apicalibus dense aequaliter punctatis, pubescentia densiore vestitis distinguendus. Long. 3·25 mm.

Antennae varying as in the preceding, the basal joint of the club usually triangular, but sometimes appearing subquadrate. Sculpture not varying much, very dense and even on the apical portion of the elytra, sparsely or little punctured only near the shoulders. Pronotum more distinctly punctured than in the preceding. Colour variable, in one example the head and thorax are black, as well as the sides of the elytra broadly, the rest of their surface being dark brown, instead of the usual ferruginous colour.

Hab. Oahu, Maui.—Oahu, widely distributed, in both ranges; Maui, Haleakala.

(4) *Mirosternus excelsior*, sp. nov.

Praecedentibus forma et colore simillimus, sed oculis minoribus, singulis spatio frontis intermedio latioribus. Elytra juxta suturam utrinque angustissime dense subtiliter punctata, caeteris partibus fere glabris, parce sed grossius punctatis. Long. 3·5 mm.

Head and thorax no doubt densely pubescent in fresh examples, and with a narrow line of pubescence on each side of the elytral suture, where the puncturation is dense. Elsewhere the elytra are smooth and shining with remote largish punctures, which tend to form rows. The antennae are entirely reddish, but the colour of these varies in the preceding species also. The sex of the specimen described is uncertain, since in the allied forms both sexes have the metasternum strongly carinated, and in this insect the carina is both long and strong. If it be a female the male would probably have the space between the eyes less wide. In any case this species is quite distinct.

Hab. Lanai, in January 1894.

(5) *Mirosternus pyrophilus*, sp. nov.

Praecedentibus simillimus, ferrugineus, flavido-pubescens, antennalis clavae articulorum 1 et 2 angulo interno sat acuto facile distinguendus. Long. 3·5 mm.

Apical side of basal club joint a little irregular or sinuate, its inner angle consequently appearing somewhat produced, the following joint with this angle quite sharp. Elytra more or less densely pubescent along the suture and there densely and finely punctured, external to this with larger and more remote punctures and the surface more rugulose, at the sides shining, longitudinally rugulose and with sparse punctures or impunctate, the sculpture of the elytra showing some variation. The space between the eyes varies in width, but whether this is sexual is uncertain. Each of these is as wide or wider than the least frontal space between them.

Hab. Hawaii, Kilauea, two examples.

(6) *Mirosternus basalis*, sp. nov.

Testaceus, capite et pronoto picescentibus, plaga elytrorum basali subtriangulari marginibusque nigricantibus. Pronotum subopacum, densissime subtiliter punctatum, dense pubescens. Elytra juxta marginem basalem suturamque et in parte apicali dense punctata, partibus caeteris remote minus subtiliter punctatis, et parum pubescentibus. Long. 3 7 mm.

General appearance and form of the several preceding species, but distinct by its colour and sculpture. The antennal club is largely developed, but the first and second joints have the inner angle rounded off and quite blunt. Metasternum carinate, apical joint of antennae very long and narrow. Sex uncertain.

Hab. Maui, Haleakala, 4000 ft.

(7) *Mirosternus sordidus*, sp. nov.

Nigricans aut piceoniger, pallide pubescens, oculis permagnis. Pronotum indistincte, subtilissime punctatum. Antennalis clavae articulus basalis triangularis, latere interno quam latus apicale evidenter breviore. Elytra densius distincte punctata, sat aequaliter pallide pubescentia. Long. 3·5 mm.

Quite unlike all the preceding in general appearance, owing to its dark colour, but with similar enormous development of the eyes. The elytra are rather strongly punctured, and the basal club joint of the antennae is remarkable, the side between the base and the inner angle being considerably shorter than the side between this angle and the apex. The latter side also is slightly irregular or sinuate. The metasternum is flat in front and strongly carinate.

Hab. Kauai; apparently rare.

(8) *Mirosternus hawaiiensis*, sp. nov.

Niger, oblongus, subrobustus, griseo-pubescens, femoribus anterioribus saepe rufescentibus, oculis spatio frontis intermedio singulis latioribus, antennarum clava permagna. Elytra lateribus exceptis subaequaliter distincte punctata et griseo-pubescentia. Long. 3·5 mm.

A more robust species than any of the preceding, black, with the tarsi often yellow or reddish, the face and pronotum pitchy red, the antennal club usually black, rarely obscure reddish, the other joints frequently more or less red. Puncturation of elytra very close and distinct, but at the sides the surface becomes shining and the sculpture of a punctate-rugulose character, the punctures sparser and coarser. The inner angles of the largely developed club joints of the antennae are not sharp and these joints are less developed in some specimens, which may be females.

Hab. Hawaii, at lower elevations, 2000—3000 ft.

(9) *Mirosternus frigidus*, sp. nov.

Praecedenti simillimus, et illius forte varietas, oculis evidenter fortius separatis tantum certe distinguendus. Long. 3·75 mm.

Doubtfully distinct from the preceding, which it resembles in nearly all respects, except that the eyes are very obviously and considerably more widely separated.

The whole of the front legs and the femora of the middle pair, as well as the scape and funicle of the antennae are red or testaceous. As compared with a specimen of the preceding the metasternum was more strongly concave, the channel finer and not distinctly crenulate, the carina in side view very short and strongly curved.

Hab. Hawaii; at 5000 ft. The preceding species was found in the wet belt of Mauna Loa, the present one above it.

(10) *Mirosternus epichrysus*, sp. nov.

Fusco-niger, totus dense aureo-pubescens, antennis rufescentibus, scapo clavaque sordidioribus. Oculi singuli spatio frontis intermedio evidenter latiores. Pronotum subtilissime punctulatum. Elytra densissime et subtilissime aequaliter punctata, et pubescentia, lateribus tantum fere glabris, parce punctatis. Long. 3 mm.

Quite distinct by its dense golden vestiture and other characters. The antennal club joints are large with the inner angles very distinct but not sharp. The width of one of the eyes is somewhat greater than the distance, where least, between them. The metasternum is carinate.

Hab. Oahu, near Honolulu.

(11) *Mirosternus duplex*, sp. nov.

Niger, fusco-niger aut piceus, flavido-pubescens. Oculi maris permagni. Antennarum clava magna, articuli 1 et 2 angulis interioribus subacutis. Elytra dense subrugulose fortius, apices versus minutissime, punctata, lateribus rugulose punctatis. Long. 3 mm.

The above diagnosis applies only to the male, which is fairly easily distinguished by the characters given. Except near the shoulders the sculpture on the sides of the elytra is close and rugulose to, or very near to, the lateral margin. The eyes are very large, the club joints of the antennae in certain aspects have an appearance of being slightly produced at their inner angles, making them acute.

The female is entirely different in many ways, the eyes are small and very remote, the antennae are much smaller, but the club joints appear to be similarly formed, though the characteristic appearance, owing to their small size, is less noticeable; the elytra, except on the apical portion, are much more sparsely punctate, while at the sides they are smooth, except for some very fine longitudinal sulci, and very sparse punctures.

HAB. Hawaii, occurs at Kilauea and the sexes have been taken in cop.

(12) *Mirosternus euceras*, sp. nov.

Major, oblongus, castaneus, antennis nonnunquam nigricantibus, sat dense flavido-pubescens. Oculi permagni, spatio frontis intermedio fere bis latiores. Antennarum clava permagna, angulis interioribus haud acutis. Pronotum dense, minutissime punctulatum. Elytra ex majore parte dense distincte punctata, lateribus fere ad apices glabrioribus, parce punctatis. Long. 3·5 mm.

Distinct by its colour, robustness, sculpture, huge eyes, etc. The elytral punctuation is less dense from a little way behind the base, and becomes excessively dense and minute on the apical portion.

HAB. Molokai, 3000 ft.

(13) *Mirosternus lanaiensis*, sp. nov.

Praecedenti cognatissimus, sed colore magis nigricante, elytris apices versus plus minus pallidioribus. Elytra parte apicali excepta distincte, minus dense punctata. Long. 3·5 mm.

The elytra are closely punctate along the basal margin as in *M. euceras*, and also are more sparingly punctured behind this, while on the apical portion both species have similar dense puncturation, except that in the present species these dense punctures extend to the lateral margins for a considerable distance towards the base. The eyes

are perhaps rather less developed and this is a smaller and darker insect. It greatly resembles some examples of *M. muticus*, but the large eyes separate it. The metasternal carina is obsolete.

HAB. Lanai.

(14) *Mirosternus blackburni*, sp. nov.

Niger, pronoto dense punctato, pubescentia grisea plus minus aureo-tincta vestito. Oculi maris magnitudine mediocres, latissime separati. Antennarum maris articuli 3 ultimi magni, horum primo intus sat acute angulato, latere apicali fortiter concavo sive emarginato. Antennae feminales mediocriter magnae. Elytra albida sive cinerea pubescentia appressim vestita, post media maculam pulchram pubescentiae aureae densam utrinque ferentia, his maculis fasciam, ad suturam valde angustatam, formantibus, parte longa apicali basique summa densissime punctatis, plaga intermedia fere glabra, nitidissima, sparsissime punctata, sulcis longitudinalibus obsoletis faciliter distinguendis, sutura elevatula. Metasternum ♂ antice fortiter carinatum. Long. 2·3—3 mm.

Cannot be confused with any other species except the following, which is perhaps hardly more than a local race. The antennae in these species sometimes have the club joints yellow.

HAB. Oahu; Waianae mountains, 2000 ft. or more; five specimens.

(15) *Mirosternus blackburnioides*, sp. nov.

M. blackburni affinis et persimilis, sed pubescentia elytrorum aurea fasciam latam formante, multo latius suturam attingente, et plagam multo majorem elytrorum postice tegente.

HAB. Oahu; common in the Honolulu range; easily distinguished, when in good condition, but often abraded.

(16) *Mirosternus affinis*, sp. nov.

Niger, nitidus, pronoto subtilissime punctato, pubescentia pallida vestitus. Oculi latissime distantes. Maris antennarum clava magna, articulo primo et secundo triangularibus, apicibus sat fortiter productis. Clava antennarum feminalis quam in mare multo minor. Elytra juxta suturam utrinque dense subtilissime punctata, parte caetera fere glabra, subseriatim et minus subtiliter, obsoletius, parce punctata, longitudinaliter obsolete sulcata. Long. 2·5—3·25 mm.

M. affinis var. *suturalis* nov.

Praecedenti simillimus, elytrorum parte dense punctata et pubescente posterius latiore distinguendus.

HAB. Kauai, Oahu, Molokai.—Kauai (var. *suturalis*) one example; Molokai; 3000 ft., three specimens.

(17) *Mirosternus sculptus*, sp. nov.

Castaneus, plus minus nigrotinctus, elytris apices versus pallidioribus. Antennae (? sexus) mediocres, clava mediocri, articulo primo multo longiore quam latiore, latere apicali leviter concavo sive emarginato, apice evidenter, sed parum fortiter producto. Oculi mediocres, latissime separati. Pronotum dense flava sive aurea pubescentia obtectum, subtilissime et ad medium remote punctatum. Elytra ex magna parte fere glabra, nitida, parum punctata, longitudinaliter fortiter canaliculata sive rugosa, basi extrema, apicebusque longe, densissime punctatis et conspicue pubescentibus. Long. 2·5 mm.

The sex of the unique example is uncertain. The longitudinal grooves on the glabrous portion of the elytra are nearly regular almost to the suture, where the sculpture becomes more ordinarily rugose.

HAB. Oahu, a single specimen in the mountains behind Waimea, 2000 ft.

(18) *Mirosternus varicolor*, sp. nov.

Nitidus, rufescens, capite pronotoque plus minusve obscuratis aut nigricantibus, elytrorum parte media plus minusve nigricante aut obscurata, antennarum clava nigra. Oculi mediocriter magni, late distantes. Antennarum ♂ clava magna, articuli primi angulo interno haud acuto. Pronotum dense subtiliter punctatum, pallide pubescens. Elytra ad basim extremam necnon in parte apicali dense et subtilissime punctata et pallide pubescentia, parte intermedia fere glabra, sparsissime punctata, punctis his majoribus. Long. 2·5 mm.

This little species varies in colour and may be either rufescent with more or less of the middle part of the elytra dark, or black with the red of the elytra forming a spot on each side at the base and an apical pale area.

Three males were captured in the same spot and a single female, which no doubt belongs to the same species, was taken with them. This has the antennae much wider apart, the head and pronotum paler, the intermediate portion of the elytra less smooth, being a little more punctured and with fine but rather conspicuous rugulosity of the surface.

HAB. Molokai; on the lower edge of the forest above Kaunakakai.

(19) *Mirosternus montanus*, sp. nov.

Niger, piceus aut rufopiceus, sat nitidus. Pronotum trans basim subtilissime dense punctatum et pubescens, antice sparsius pubescens, puncturatione vix discernenda. Oculi mediocres, latissime distantes. Antennarum clava mediocriter magna, articulo primo minus fortiter dilatato. Elytra nitida fere glabra, circum suturam dense, subtilissime, obscure, sive obsoletim punctulata, ibique subtiliter pallide pubescentia, parte caetera subtilissime longitudinaliter rugulosa et sparsissime obsolete punctata. Metasternum haud aut obscurissime carinatum. Long. 2·5—3 mm.

The sexes apparently do not differ greatly in the development of the club joints of the antennae, or else the ten examples are of the same sex and the individuals rather variable. What I consider to be males have the club joints of only moderate size.

HAB. Kauai; various localities.

(20) *Mirosternus rugipennis*, sp. nov.

Niger, nitidus, pronoto plus minus pallide pubescente, elytris glabris. Oculi ♂ mediocres, latissime distantes. Antennarum clava ♂ magna, articulo primo acute intus angulato, latere apicali concavo sive emarginato, angulo apicali sat producto. Clava feminalis maris multo minor, sed angulo interno articuli primi sat acuto. Pronotum posterius dense, subtilissime, antice vix evidenter punctatum. Elytra sparsissime (nonnunquam vix evidenter) punctulata, longitudinaliter subregulariter subtiliter sulcata, suturam juxta haud lineam dense punctulatam praebentia. Metasternum ♂ parum concavum, sed posterius sulcatum, antice carina elongata et distincta praeditum. Metasternum ♀ sat fortiter concavum, carina obsoleta aut absente. Long. 2—3·5 mm.

HAB. Hawaii; Mauna Loa, about 3000 ft.

(21) *Mirosternus simplex*, sp. nov.

Niger aut piceus, nitidus, pronoto minus dense pallide pubescente. Oculi ♀ (? et ♂) minores, latissime separati. Antennarum clava ♀ (? et ♂) haud magna, angulo articuli primi interno et secundi haudquaquam acuto. Pronotum subtilissime puncturatum, nitidum, minus dense pubescens. Elytra nitida, fere glabra, juxta suturam angustissime impressa sive deplanata, ibique subtilissime punctulata et brevissime pallido-pubescentia, basi extrema a scutello ad humeros hoc modo vestita et punctulata, caeteris partibus sparsissime punctatis, vix aut haud rugulosis. Long. 2·4 mm.

HAB. Hawaii, Kona, 3000 ft. I have seen two examples, one of which is a little immature and is a female; the other is probably of the same sex. It is black and has been badly damaged by unskilled mounting.

(22) *Mirosternus denudatus*, sp. nov.

Niger, subnitidus, pronoto subtilissime punctato et pallide pubescente, *M. simplici* simillimus, sed elytris ad suturam haud impressis, ibique haud densissime punctulatis et pubescentibus distinguendus.

I have seen but two examples of this species, probably females, since the club joints of the antennae are not at all large. Both have been badly damaged by unskilled mounting. The punctures near the suture of the elytra are not so small as usual, quite different from the dense and excessively minute ones of other allied species, though towards the apex of the elytra they become denser and finer and there the surface becomes pubescent. The extreme basal margin is also more or less closely punctate and pubescent.

HAB. Molokai, 3000 ft.

(23) *Mirosternus latifrons*, sp. nov.

M. simplici simillimus, niger, nitidus, pronoto pallide pubescente, elytris ex majore parte fere glabris, parce subseriatim punctatis, suturam juxta et ad marginem basalem densissime punctulatis, ibique pubescentibus. Antennarum clava magna, articulo primo late triangulari, apice fortiter producto, angulo interno acuto. Oculi latissime separati. Metasternum antice fortiter carinatum. Long. 2·2 mm.

I have seen only one example of this minute species. It may prove to be the male of *M. simplex*.

HAB. Oahu.

(24) *Mirosternus pusillus*, sp. nov.

Niger, nitidus, pallide pubescens. Oculi haud magni, latissime separati. Antennarum clava (♂) magna, articulo primo late triangulari, angulo interno fortiter acuto, secundo sat lato, margine apicali et margine interno fere aequilongis. Pronotum minus dense pubescens. Elytra ex magna parte perparce (nec subtilissime) punctata, parum pubescentia, parte apicali minutissime punctulata et minus dense pallido-pubescente, basi summa subtiliter vix sparsim punctata, sutura apicem versus sat fortiter impressa. Metasternum antice planum, fortiter carinatum. Long. 2·2 mm.

I have seen only one example of this species.

HAB. Oahu, in company with *M. latifrons*.

(25) *Mirosternus irregularis*, sp. nov.

Niger, sat nitidus, pube pallida subflavescente vestitus. Oculi haud magni, latissime separati. Antennarum clava sat magna, articulo primo ad apicem producto, angulo interno haud acuto. Pronotum minutissime punctatum, antice punctis vix discernendis, nitidum. Elytra haud dense subirregulariter punctata, punctis magnitudine inaequalibus, leviter sive subobsoletim impressis, minus dense sed subaequaliter pallida pubescentia ubique vestita. Metasternum antice deplanatum et fortiter carinatum. Long. 2·3 mm.

I have seen only one example of this very obscure species, which is not at all closely related, I think, to any of the preceding. It is not in very good condition and I was unable to examine it very minutely. It may belong to one of the species near *M. carinatus* Sharp.

HAB. Maui, Haleakala (5000 ft.).

(26) *Mirosternus laevis*, sp. nov.

Oblongus, nitidus, pronoto picescente, elytris (♀?) testaceis aut (♂?) nigrosuffusis, parte apicali tantum maculaque utrinque humerali testaceis. Oculi minores, latissime distantes. Antennarum clava fusca, articulo primo minore. Pronotum pallide pubescens. Elytra nitida, glabra, suturam juxta obsolete punctata, parte caetera laevi, sparsissime, vix evidenter, punctata, sutura apicem versus evidenter impressa. Long. 2·2 mm. (alter minor, sed fractus).

I have seen but two examples of this species and both have been more or less damaged by unskilled handling in the attempt to expand the antennae. In the paler example, which is, no doubt, a female, the metasternum is concave and there is a feeble, elongate, raised line or carina in front. In the other example possibly a male the metasternum has been damaged and I cannot determine its structure.

HAB. Kauai, 4000 ft.

(27) *Mirosternus fractus*, sp. nov.

Niger, antennarum clava minor, elytris ex majore parte rufescentibus, fere glabris, parcissime punctatis. Long. 3 mm.

I have only seen one specimen in a fragmentary condition, but the species appearing rather remarkable, I have ventured to describe it. The antennal club is not at all strongly developed, the first and second joints with the inner angle not acute, and the apex not much produced. The elytra are mostly red, having a basal transverse black band, which is continued down the suture for two-thirds of their length. Along the suture the puncturation is excessively minute, and posteriorly it is impressed and bears a little pale pubescence. Elsewhere there are very sparse punctures, feebly impressed and of larger size. The basal black colour is also continued for some distance along the lateral margins beneath the shoulders.

HAB. Lanai, 2000 ft.

(28) *Mirosternus molokaiensis*, sp. nov.

Niger (nonnunquam plus minus piceus) nitidus, elytris postice saepe, ad humeros nonnunquam, rubromaculatis, pronoto pallide pubescente. Oculi minores, late separati. Antennarum clava angustior, articulo primo haud aut haud multo, quam secundus, latiore, elongato, margine externo internoque ex magna parte fere parallelis. Elytra glabra, nitida, subtilissime rugulosa, parum (saepe vix evidenter) punctata. Long. vix 2—2·5 mm.

A most distinct species in spite of the variability in colour. I suspect that the examples with the narrowest and most strongly parallel-sided basal joint of the club of the antennae are males, those in which it is more normal, that is more triangular in shape are females. I have seen only eight or nine examples, most of which have been roughly handled in mounting. The bright red markings are very characteristic, when present.

Hab. Molokai, on the lowest skirts of the forest.

(29) *Mirosternus kauaiensis*, sp. nov.

Niger, nitidus, pronoto plus minusve pubescente, elytris fere glabris, antennarum clava tenuissima et elongata, articulo primo angustissimo, elongato, lateribus fere parallelis, secundo circa bis longiore quam latiore, tertio angustissimo et valde elongato. Elytra suturam juxta dense subtiliter punctulata, parte caetera sparsim, minus subtiliter punctata, punctis ex majore parte seriatim dispositis. Oculi latissime separati. Long. 2·2 mm.

Allied to *M. molokaiensis* but with the antennal characters still more exaggerated, and the elytra differently sculptured. One example, probably a ♂, taken.

Hab. Kauai; 4000 ft.

(30) *Mirosternus ignotus*, sp. nov.

Niger, parum nitidus, pronoto griseo-pubescente, subtiliter punctulato. Oculi minores, latissime distantes. Antennarum clavae articulus primus parum fortiter dilatatus, hujus et secundi angulo interno haudquaquam acuto. Elytra juxta suturam, necnon in parte basali circa scutellum subfortiter ruguloso-sculpturata, ibique griseo-pubescentia, parte caetera subtiliter rugulosa, punctis obsoletis perpaucis, vix videndis. Long. 2·5 mm.

The single example taken had been very roughly manipulated, being partly broken and very dirty and covered with gum. It has not been possible to study it very satisfactorily, as it could only be handled very carefully in cleaning off the dirt. It appears to most nearly resemble some examples (probably ♀) of *M. molokaiensis*, but the basal joint of the antennal club is less narrow and less parallel-sided than in the probable males of that species. Its duller and (in parts) more strongly sculptured elytra will also readily distinguish it. No doubt the pubescence is more or less abraded in the type.

HAB. Hawaiian Islands, perhaps Hawaii. The specimen was without any number.

(31) *Mirosternus lugubris*, sp. nov.

Niger, nitidus, pronoto pallide pubescente, oculis mediocribus, late distantibus. Antennarum clava ♂ magna, articulo primo et secundo late dilatatis, apicibus fortiter productis; antennarum clava ♀ multo minor. Pronotum ubique pubescens, subtilissime punctatum. Elytra nitida, apices versus densissime minute punctata et pubescentia, basi extrema sat dense punctata et pubescente, parte intermedia ♂ parce aut haud dense, ♀ parce aut parcissime punctata, fere glabra aut minus pubescente. Metasternum ♂ antice fortiter carinatum. Long. 2·5—3·2 mm.

This is a variable species and difficult to characterize. Normally the elytra behind the extreme base are extremely sparsely punctured in the ♀, but a good deal less sparsely in the ♂. In the former sex the surface is often glabrous with slight longitudinal sulci and a few punctures only. In extreme ♂♂ the same part is not very remotely punctate and is pubescent, but both punctures and pubescence are less dense than on the apical portion of the elytra. Some males however closely resemble the female in sculpture, and some of the latter more nearly approach males. Exactly the same difficulty occurs with other species of the genus. On account of its variability, difficulty may be encountered in separating *M. lugubris* from forms on other of the islands, but it cannot be confused with species of similar sculpture on Hawaii, because it has smaller eyes than these.

HAB. Hawaii; found in the wet belt of the forests at an elevation of 2000—3000 ft.

(32) *Mirosternus maurus*, sp. nov.

Niger, aut piceus, nonnunquam (immaturus?) testaceus, oblongus, elytris elongatis, lateribus fere parallelis. Antennarum ♂ clava maxima, articulo primo ad apicem valde producto, triangulari aut quasi quadrangulari, magnitudine et forma variabili, articulo ultimo, quam solitus, latiore, apice truncato. Oculi minus magni, et latissime distantes. Clava antennalis ♀ maris multo minor. Pronotum nitidum, subtilissime punctulatum, griseo-pubescens. Elytra nitida, ex majore parte fere glabra, linea pubescentiae griseae suturali sat distincta, ibique minus subtiliter ruguloso punctata, sutura apicem versus sat fortiter impressa. Long. 3 mm.

The puncturation of the elytra varies, as well as other features mentioned above, the punctures being sometimes close and rugulose only narrowly along the suture, at

other times spread much further over the dorsum. Club of antennae not at all large in the female and sometimes pallid. In one example the sides and apex of the elytra are reddish brown.

HAB. Kauai, 4000 ft.

(33) *Mirosternus parvulus*, sp. nov.

Niger, nitidus (pronoto et capite saepe plus minus piceis) pronoto pallide pubescente et subtilissime punctato. Oculi ♂ sat magni sed late distantes, spatio intermedio frontis, quam unus ex his, multo latiore. Oculi ♀ sat magni, oculis ♂ vix minores. Antennarum ♀ clava haud magna, angulo interno articuli primi haud acuto; clava maris sat magna, articuli primi apice sat fortiter producto. Elytra pernitida, fere glabra, postice circum suturam pubescentia pallida anguste (saepe lineatim) vestita, ibique subtilissime dense punctata, partibus caeteris usque ad marginem basalem perparce (nec subtilissime) punctatis et longitudinaliter rugulosis. Long. 2—2·5 mm.

Varies a little in the puncturation, the very fine punctures sometimes extending to the base of the elytra along the margins of the scutellum in an unbroken narrow line on each side of the suture, while sometimes these lines are interrupted on the basal portion of the elytra, but become distinct again on either side of the scutellum. This densely punctured area also sometimes spreads out more widely on the more apical portion of the elytra.

I have seen a small series only of this little species, but I think it is not at all rare in the Honolulu range.

HAB. Oahu; Honolulu range, 1500—2800 ft.

(34) *Mirosternus eutheorus*, sp. nov.

Nigricans aut piceo-niger, elytris nitide rufo-brunneis aut testaceis, oblongus. Oculi permagni, sed sat late distantes, spatio frontis intermedio, quam unus ex his, haud minus lato. Antennarum ♂ clava magna, articulo primo late triangulari, angulo interno minus acuto, secundo etiam late triangulari, angulo interno rotundato. Pronotum sat nitidum, pubescentia pallida conspicue vestitum. Elytra ex majore parte fere glabra, nitida, sparsim remote punctata, suturam juxta et ad marginem basalem dense subtilissime punctulata, ibique pallide pubescentia. Metasternum totum concavum, antice fortiter carinatum. Long. 2·75 mm.

A small species with unusually large eyes, which are widely separated. The metasternum is concave for its whole length, not flat (or almost so) in front, where it bears the carina, as is the case in most of the strongly carinated species. I have seen only a few specimens.

HAB. Oahu, Waianae mountains.

(35) *Mirosternus nigrocastaneus*, sp. nov.

Nigrocastaneus, minus nitidus, antennarum basi rufescente, clava nigricante. Oculi magni, singulis ac spatium frontis intermedium fere aeque latis. Pronotum pallide pubescens, nitidum, parum distincte punctatum. Elytra ad suturam dense punctata, ibique pallide pubescentia, parte caetera subtiliter rugulosa, sparsim subobsolete minus subtiliter punctata, sparsim et parum conspicue pubescentia, sutura versus apicem haud impressa. Metasternum ♂ anterius fortiter carinatum. Long. vix 3 mm.

I have seen but one example, no doubt a male; the antennae are strongly developed, but of usual form, the two basal club-joints triangular, somewhat strongly dilated, with the inner angle blunt.

HAB. Kauai, Halemanu.

(36) *Mirosternus xanthostictus*, sp. nov.

Nigricans aut plus minusve piceus, antennarum articulis basalibus pedibusque rufescentibus, capite pronotoque pallide pubescentibus, hoc subtilissime minus distincte punctulato. Oculi sat magni sed late distantes. Antennarum articuli 3 ultimi sat magni, horum primo haud acute intus angulato, apice fortius producto. Elytra flavescentia, plaga magna subtriangulari basali, fascia transversa postmediana, sutura, marginibusque lateralibus, nigricantibus, fere glabra, parcissime obsoletim punctata. Long. 2·5 mm.

The two examples described are probably males and the species is unlike any other. A third example taken subsequently and I think in another locality is a marked and perhaps constant variety, the posterior yellow colour of the elytra is reduced to two small spots, the punctures are more evidently serially arranged in shallow grooves and are more distinct, while the antennae are also slightly different.

HAB. Oahu, Waianae mountains; the variety probably in the Honolulu range.

(37) *Mirosternus bicolor* Sharp.

Mirosternus bicolor Sharp, Tr. Ent. Soc. London, 1881, p. 525.

I have seen one example of this insect, taken either by Koebele or myself, when collecting together. Previously I had supposed that the specimens of *M. xanthostictus* would prove to be *M. bicolor*, since they came from the same locality as the type of the latter species. The two are, however, quite distinct. The eyes of *M. bicolor* are of moderate size and are widely separated.

HAB. Oahu, Waianae mountains (Blackburn); Honolulu mountains.

(38) *Mirosternus glabripennis* Sharp.

Mirosternus glabripennis Sharp, Tr. Ent. Soc. London, 1881, p. 524.

This species greatly resembles *M. montanus* and allied species in sculpture but is easily distinguished by the much larger eyes, the width of one of these being not much less than the space, where least, between them. There is a slight tendency in the elytra to become uneven from longitudinal grooves or depressions and of the very sparse subobsolete punctures to be serially arranged. Whether the types, which are supposed to be ♂ and ♀, are really so, and not slightly differently developed examples of one sex is I think doubtful.

Since the above was written I have myself taken an example of *M. glabripennis*, which before was wanting in my collection, in the Honolulu range of mountains, and still more recently another yet nearer to Honolulu itself. I have never found it in the Waianae mountains nor is it likely to exist there now at so low an elevation (1000 ft.) as that at which it was found by Blackburn. The antennae are sometimes rufescent.

Hab. Oahu, Waianae mountains (1000 ft.) Blackburn; near Waialua and near Honolulu, 1200—1500 ft.

(39) *Mirosternus pallidicornis*, sp. nov.

Nigrocastaneus, nitidus, capite, pronoto elytrorumque apicibus plus minus rufescentibus, antennarum clava lucide testacea. Oculi majores sed late separati. Antennarum clava (♀ et ♂?) mediocriter magna, articulo primo triangulari, angulo interno haud acuto. Pronotum parum nitidum, pubescens, subtilissime punctatum. Elytra elongata, nitida, ex majore parte fere glabra, tantum juxta suturam (praecipue apicem versus) dense et minutissime punctulata, ibique aureo-pubescentia, parte glabra sparsissime minus subtiliter punctata. Long. 3·75 mm.

Very closely allied to *M. glabripennis* Sh., but distinguished by the more elongate elytra, which become very gradually narrower from base to apex. Having seen but one example, I do not know whether the colour of the antennae is constant. The same pallid colour is known to appear as a variation in several other species and probably occurs in most.

Hab. Kauai, 4000 ft.

(40) *Mirosternus peles*, sp. nov.

Nitidus, niger, pronoto pallide pubescente. Elytra elongata, fere glabra, nitidissima, sparsissime punctata, circum suturam (saltem posterius) minutissime punctata, pallideque pubescentia, parte apicali latera versus obsolete ruguloso-sculpturata. Oculi

maris majores sed late separati. Metasternum anterius obsolete sive vix evidenter carinatum. Long. 3—3·5 mm.

Very like *M. glabripennis*, but a more elongate insect, and easily distinguished by the fact that the pubescence, instead of forming a narrow line along each side of the suture, spreads out posteriorly as a thin covering over the general surface, the surface having a feeble, but close, rugulose sculpture to, or nearly to, the lateral margins on the apical portion. The club of the antennae is only very moderately developed. I have examined a satisfactory series.

HAB. Hawaii; widely distributed at 4000 ft. and above in dry localities.

(41) *Mirosternus angulatus*, sp. nov.

Brunneus, nitidus, capite nonnunquam obscuriore. Oculi haud magni, latissime separati. Antennarum clava sat magna, articulo primo triangulari, fortiter dilatato, angulo interno conspicue acuto. Pronotum flavido-pubescens, nitidum, ex majore parte obsoletissime, sive vix evidenter, punctatum. Elytra ad suturam, anterius angustissime, posterius late, subtilissime dense punctulata, ibique pubescentia, caeteris partibus fere glabris, nitidissimis, parcissime punctatis, punctis majoribus, levissime impressis, latera versus subtilissime longitudinaliter rugulosa. Metasternum carinatum. Long. 3 mm.

This appears to be a very distinct species. The fine puncturation of the elytra is confined to the sutural margin anteriorly, but posteriorly spreads widely outwards, though not nearly attaining the lateral margins. The inner angle of the antennal club joints is unusually sharp.

HAB. Maui, Haleakala, 4000—5000 ft.

(42) *Mirosternus konanus*, sp. nov.

Niger, nitidus, capite et pronoto obscure rufescentibus, hoc elytrorumque apicibus sat dense aureo-pubescentibus. Oculi ♂ magni, ex his unus spatio frontis intermedio vix minus latus, oculi ♀ multo minores et late distantes. Antennarum clava ♂ magna, articulo primo lato, angulo interno haud acuto. Antennarum clavae ♀ articulus primus articulo maris secundo vix major. Elytra nitida, sat elongata, parte apicali usque ad margines laterales densissime punctata, et pubescente, parte reliqua fere glabra sparsissime punctata, parum aut haud rugulosa, basi extrema haudquaquam dense punctata. Long. 2·75—3 mm.

I have seen only three examples.

HAB. Hawaii; Mauna Loa within the wet belt.

(43) *Mirosternus cognatus*, sp. nov.

Nigricans, nitidus, capite pronotoque et parte apicali elytrorum plerumque plus minusve rufescente. *M. konano* similis et affinis, sed antennarum ♂ clavae articulis minus dilatatis, oculisque minoribus distinguendus. Metasternum anterius haud carinatum. Long. 3·5 mm.

I have examined about a dozen examples of *M. cognatus* and find only small differences between the joints of the antennal club in any of these, although it is hardly possible that both sexes are not represented. The antennae, in fact, are very like those of the female of *M. konanus*. If, therefore, I understand the species rightly, and both sexes of *M. cognatus* are present, the males having a slightly more developed antennal club, then this species is entirely distinct from *M. konanus* by the only slight, sexual dimorphism, and the much smaller eyes and antennal club of the ♂.

Hab. Maui, Haleakala, 5000 ft.

(44) *Mirosternus amatus*, sp. nov.

Rufobrunneus, pronoto sat dense flavo-pubescente. Oculi magni, prominentes, sed sat distantes, unus ex his spatio frontis intermedio vix latitudine aequalis. Antennarum clava sat magna, angulis internis sat rotundatis, haud acutis, articuli secundi apice parum producto. Elytra parce pubescentia, nitida, minus subtiliter punctata, apicibus opacis, densissime minute punctatis, densius flavo-pubescentibus, parte basali extrema (nisi juxta humeros) haud dense punctata. Long. 2·75 mm.

Closely allied to *M. konanus* &c. The punctures on the more glabrous parts of the elytra are less fine than usual, and seem uneven in size. Even along the suture the puncturation is not very dense and fine except posteriorly. Along the basal margin the punctures are by no means dense except perhaps close to the humeral prominence.

I have seen but one specimen, which having been bred is in very fine condition; and probably more clothed with hairs on the smooth parts of the elytra than a caught specimen would be. Its antennae are pale in colour, but this is not likely to be a constant character. The tree from which it was bred was entirely dead, but I think it was a *Cheirodendron*.

Hab. Oahu, Honolulu range, 1500 ft.

(45) *Mirosternus parcus*, sp. nov.

Castaneus aut castaneo-niger, sat nitidus, pronoto sat dense pubescentia pallida, saepe flavescente, vestito, subtilissime (anterius perparce) punctato. Oculi ♂ majores sed sat distantes, feminae, quam maris, multo minores et latissime distantes. Antennarum clava ♂ magna, articuli primi apice fortiter producto, angulo interno haud acuto;

clava ♀ multo minor, articulo primo angusto, circa bis longiore quam latiore. Elytra minus fortiter elongata, ex majore parte fere glabra, parcissime vel etiam vix evidenter punctata, conspicue subtiliter longitudinaliter rugulosa, parte apicali dense minute punctata et pallide saepe flavide pubescente. Long. 2·75—3 mm.

I have seen only 5 examples of this species and there is some variation in the development of the individuals, but I cannot doubt that they are one species. The colour of the antennae &c. varies as in many other species. One example was taken close to Honolulu in the mountains at 1500 ft. in 1896, two more in 1900, and two in the same range but twenty miles away in 1901. It would therefore seem to be rather scarce.

Hab. Oahu, near Honolulu and elsewhere, 1500 ft.

(46) *Mirosternus subparcus*, sp. nov.

Capite et pronoto brunneis aut rufescentibus, elytris brunneo-nigris, marginibus et circa suturam apicem versus pallidioribus, *M. parco* cognatissimus, sed oculis conspicue majoribus distinguendus.

I separate a single specimen from *M. parcus* on account of the conspicuously larger eyes, the width of one of these, in a front view of the face, being about equal to the space between the eyes. I see no other specific character.

This specimen was collected by Koebele on Oahu, on one of the occasions when he accompanied me, but it bears no definite locality label.

Hab. Oahu; collected by A. Koebele in 1900 or 1901.

(47) *Mirosternus hypocoelus*, sp. nov.

Major, rufescens, flavo-pubescens, elytris nigrocastaneis, apicaliter rufescentibus. Oculi magni, sed late distantes. Antennarum clava major, articuli primi et secundi angulo interno haud acuto, apicibus minus fortiter productis. Elytra ex magna parte fere glabra, perparce punctata, nitida, parte apicali densissime subtilissime punctata, ibique conspicue flavo-pubescente, parte suturali utrinque angustissime crebre punctata, basi extrema evidenter flavo-pubescente et subtilissime crebre punctata, sutura in parte elytrorum declivi fortiter impressa. Metasternum postice profunde concavum, antice distincte carinatum. Long. 3·75 mm.

Only one example of this species was taken. It was in company with *M. euceras*, which in some respects it greatly resembles. It is allied apparently to *M. cognatus*, but easily distinguished from that and *M. konanus* by the close puncturation at the base of the elytra. I feel quite uncertain of the sex of the unique specimen.

Hab. Molokai, on the lowest edge of the forest above Kaunakakai.

(48) *Mirosternus muticus* Sharp.

Mirosternus muticus Sharp, Tr. Ent. Soc. London, 1881, p. 523.

This species is very abundant on Hawaii and no doubt is common on Maui, though I did not take many specimens there. It varies in size, colour and puncturation. The eyes are large, but rather widely separated even in the ♂.

Hab. Maui, Hawaii.—Maui, Haleakala; Hawaii, widely distributed (4000—5000 ft.).

(49) *Mirosternus discolor*, sp. nov.

Colore variabilis, fusco-niger, castaneus, aut nigro-castaneus, capite cum pronoto saepe elytris pallidiore, subnitidus, parcius pallide pubescens. Oculi magni, singulis ac frontis spatium intermedium fere aeque latis. Antennarum clava sat magna, plerumque brunnea aut rufescens, articulo primo triangulari, fortiter dilatato, angulo interno haud acuto, apice fortiter producto. Pronotum subtilissime indistincte punctulatum, pallide pubescens. Elytra subnitida, haud dense pubescentia, puncturatione indistincta et plus minus obsoleta, male definita. Long. 3—3·5 mm.

This is an obscure species but not difficult to recognize, having the eyes of large size and the elytral puncturation feeble. In fresh examples the pubescence is most noticeable along the sutural portion of the elytra, where the puncturation is usually close and very fine. Beyond this there is a good deal of very fine surface rugulosity and the punctures are remote and feeble. The puncturation varies considerably. I am not able to be sure as to the sexes in this species.

Hab. Hawaii, Kilauea.

(50) *Mirosternus marginatus*, sp. nov.

Ferrugineus sive rufo-brunneus, pronoto sordidiore, sat dense pubescentia pallida flavescente vestitus. Oculi magni, sed late separati, singulis spatio frontis intermedio evidenter minus latis. Antennarum clava magna, articulis 2 basalibus quodam in aspectu quasi quadrangularibus. Pronotum subtilissime minus distincte punctatum, bene pubescentia vestitum. Elytra subaequaliter subtiliter punctata, et pubescentia, marginibus obscurioribus aut plus minus nigricantibus, sutura apicem versus fortiter impressa. Metasternum anterius planum et fortiter carinatum. Long. 3·25 mm.

Superficially like *M. oculatus* &c., but with much smaller eyes, which are much more widely separated.

Hab. Kauai, 4000 ft.

(51) *Mirosternus eximius*, sp. nov.

Niger, antennis rufis, clava nigra, elytris densissime punctatis, postice subtilissime cinereo-tomentosis, anterius pubescentia aurea, ad latera postice prolongata, vestites. Oculi mediocres, latissime separati. Antennarum clava maxima, articulis 2 basalibus latis, angulo interno quasi levissime producto, conspicue acuto. Elytra anterius dense punctata, posterius omnium densissime et minutissime punctulata, lateribus humeros juxta nitidis. Metasternum antice brevissime carinatum sive tuberculatum. Long. 2·75 mm.

Quite unlike any other species, the rather coarse yellow pubescence of the basal half of the elytra is prolonged backwards towards the sides, the grey apical tomentum being excessively fine and short; the antennae are also remarkable, the basal joint of the club having a slight irregularity or sinuation of the margin of its sides, which increases the acuteness of its inner angle. This structure is also more or less perceptible in the second club joint.

Hab. Oahu, without locality, collected by Koebele and myself; two specimens.

(52) *Mirosternus punctatus* Sharp.

Mirosternus punctatus Sh., Tr. Ent. Soc. London, 1881, p. 526.

Unless I have taken it recently, I do not know this species. I believe I possess a specimen from Kauai that agrees fairly well with the description, but it is not at present available for examination.

Hab. Oahu, Waianae mountains (Blackburn).

(53) *Mirosternus solitarius*, sp. nov.

Niger, dense subtiliter subaequaliter punctatus, totus pubescentia pallida flavescenti vestitus. Oculi sat magni, sed late separati. Antennarum clava magna, articulo primo triangulari, fortiter dilatato, angulo interno haud acuto. Pronotum subtiliter (ad basim dense) punctatum. Elytra crebre distincte punctata, lateribus versus humeros nitidis et perparce punctatis. Metasternum ♂ fortiter carinatum. Long. 3·5 mm.

I have seen only one ♂ of this species. It appears to be distinct from *M. punctatus* Sharp by the more widely dilated basal two joints of the antennal club and the apical joint is also less narrow and, owing to the oblique truncation, sharper at the apex.

Hab. Oahu, Honolulu range, 1500 ft.

(54) *Mirosternus amaurodes*, sp. nov.

Niger, antennis fere nigris, tibiis nigris, femoribus anterioribus rufis. Oculi magnitudine mediocres, latissime separati. Antennarum clava ♂ magna, articulo primo fortiter dilatato, angulo interno haudquaquam acuto, apice fortiter producto. Elytra dense subtiliter punctata. Long. 3·25 mm.

I have seen two males only of this species, both entirely denuded of pubescence, and one much mutilated by unskilled mounting. It is very similar to *M. solitarius* of Oahu, but the eyes of that species are so much larger, it is impossible to treat them as belonging to one species.

HAB. Hawaii, Kona, 3000 ft., in the wet belt.

(55) *Mirosternus plebeius*, sp. nov.

Nigricans, fusco-niger aut piceus, capite (et nonnunquam pronoto) elytris saepe pallidiore, pallida (cinerea aut flavescente) pubescentia vestitus. Oculi magnitudine mediocres, aut minores, latissime separati. Antennarum clava ♂ sat magna, articulis 1 et 2 fortiter dilatatis, angulis internis haud acutis. Pronotum nitidum, ex majore parte vix evidenter punctatum. Elytra crebre plus minus obsolete punctata, puncturatione plus minus rugulosa, lateribus nitidis rugulosis, parce punctatis, punctis versus humeros perpaucis. Metasternum carinatum. Long. 2·75—3·25 mm.

This species is best recognized by the elytral puncturation, which is dense and of an indefinite character, the punctures tending to run into one another, and making the surface rugulose. The antennae of the female are small, much less developed than in the ♂, the eyes are remote and not at all large in either sex. There is some variation in the intensity of the puncturation. In both sexes the metasternum is carinate, the carina in the ♂ longer than that of the female.

HAB. Hawaii, Kilauea.

(56) *Mirosternus elongatulus*, sp. nov.

Brunneus aut fusco-niger, pubescentia flavescente crebre vestitus, forma sat elongata. Oculi mediocres, late separati. Antennarum clava magna, articulo primo triangulari, fortiter dilatato, apice (necnon etiam secundi) fortiter producto, angulo interno acuto aut saltem parum obtuso. Elytra densius aequaliter pubescentia, crebre punctata, lateribus humeros juxta nitidis, parce punctatis. Long. 3—3·5 mm.

Except that one example is black or nearly so, the three examples agree very well in most respects. Though everywhere dense on the dorsal surface, the puncturation of the elytra becomes still more dense and minute on the apical part. It is also dense along the lateral margins except towards the shoulders. The legs and two basal joints of the antennae are red in all the specimens, the club joints black, the intermediate joints red in two and dark in the other example. I should think all three are certainly males and I do not know the other sex. The elytra are unusually elongate.

HAB. Maui, Haleakala, about 4000 ft.

(57) *Mirosternus tetragonus*, sp. nov.

Niger, fusco-pubescens, elytris dense punctatis, antennarum articulo secundo rufo, tibiis nigricantibus. Caput subtiliter punctatum, oculis mediocribus, latissime separatis. Antennarum clava magna, articulo basali subquadrangulari, apice fortiter producto, articulo secundo triangulari, apice fortiter producto. Elytra ex majore parte aequaliter crebre punctata, fusco-pubescentia, lateribus fere ad humeros dense punctatis, sutura postice impressa. Metasternum anterius fortiter carinatum. Long. 2·75 mm.

The single example is no doubt a male and is easily distinguished by the antennae and sculpture. The puncturation of the pronotum appears to be very indistinct, much more so than that of the head.

HAB. Kauai, 4000 ft.

(58) *Mirosternus rufescens*, sp. nov.

Rufescens, capite obscuriore, pronoto antice, elytrorum lateribus, sutura, antennarumque clava nigricantibus, pallide pubescens. Oculi magnitudine mediocres, latissime separati. Antennarum clava magna, articulo primo quodam in aspectu quasi subquadrangulari, apice fortiter producto. Pronotum subtiliter vix dense sat evidenter punctatum. Elytra pubescentia pallida flavescente vestita, apices versus usque ad margines laterales densissime et subtilissime punctata sive sculpturata, ad basim et juxta suturam subtiliter sat crebre punctata, caetera parte minus dense punctata. Long. 2·5 mm.

The single example is no doubt a male, the antennal club being well developed. The first joint of this club in certain aspects has an almost subquadrangular appearance, part of the inner margin appearing to be nearly parallel to the outer. This character with the colour, sculpture of thorax and elytra &c. distinguish the species.

HAB. Maui, Haleakala, about 5000 ft.

(59) *Mirosternus dubiosus*, sp. nov.

Nigricans, pronoto picescente, pubescentia flavescente vestitus. Oculi minores, latissime separati. Antennarum clava sat magna, articulo primo quasi quadrangulari, vix latissime dilatato, apice fortius producto. Pronotum densius pubescens, vix nitidum, crebre ubique (sed indistincte) minutissime punctulatum. Elytra supra dense punctata et pubescentia, latera versus nitida, fere glabra, longitudinaliter rugulosa, parce (nec subtiliter) plus minus seriatim punctata. Metasternum late depressum, carina forti et elongata antice instructum. Long. 2·75 mm.

The single example described is no doubt a male. Both the first and second club joints of the antennae have a more or less evident quadrangular shape. The sculpture of the elytra is dense and they are well clothed with pubescence over the middle third or more of their width, exterior to which the punctures become remote and the surface nearly bare.

A female example taken at the same time and place probably belongs to this male; the antennae are a good deal smaller and the first and second joints of the antennal club are triangular (as it is quite likely they would be in some specimens of the male) and the whole club is more or less pale in colour. The latter is also a character of no importance in Hawaiian Anobiidae.

I have a male specimen procured in another locality and at a later time which considerably resembles the male described. The antennal club is rather larger, the puncturation of the elytra is coarser in part, and the area of dense punctures does not extend so far outwards from the suture. It is impossible to decide whether this is another species or a variety of *M. dubiosus*.

Hab. Oahu, Koolau range.

(60) *Mirosternus carinatus* Sharp.

Mirosternus carinatus Sharp, Tr. Ent. Soc. London, 1881, p. 524.

The male of the species, which I refer to *M. carinatus* Sharp, from the description, is a black insect, but the female is brown in colour. I have examined many specimens and have no doubt as to the sexual dimorphism, since I have taken examples in cop. There is a very considerable variation in the puncturation, at least in the females, some having this much more sparse than others. The eyes in both sexes are not at all large and very widely separated. The metasternum of the female is without a carina in front, or at least has only a rudimentary one, much more feeble than that of the ♂. I refer to the same species numerous specimens from Kauai, which are of much smaller average size, sometimes even minute, but the largest examples of these equal or exceed the smaller ones from Maui. Both on Kauai and Maui the puncturation of the elytra shows the same variability and is very perplexing. I should think it very probable that Blackburn's *M. acutus* is a variety of the Kauai form of this species.

Hab. Kauai, Maui.—Maui, Haleakala (4000—5000 ft.); Kauai (3000—4000 ft.), a common species.

(61) *Mirosternus acutus* Blackburn.

Mirosternus acutus Blackburn, Tr. Dublin Soc. 1885, p. 160.

I have suggested under *M. carinatus*, that *M. acutus* may be a form of that species. Ten years ago I made a superficial examination of *M. acutus*, but for purposes of identification it would be necessary to relax and thoroughly clean the unique type, before coming to any decision on this point.

HAB. Kauai (Blackburn).

(62) *Mirosternus tristis*, sp. nov.

Niger, griseo-pubescens, antennis (articulo secundo saepissime excepto) nigris aut fere nigris, tibiis nigris aut nigricantibus, femoribus anterioribus plerumque, et nonnunquam caeteris, rufescentibus. Oculi minores et latissime separati. Antennarum clava magnitudine mediocris, articulo secundo triangulari, angulo interno plus minusve acuto. Pronotum ex majore parte obsolete punctatum, nitidum. Elytra dense subtiliter, plerumque plus minus rugulose, punctata, griseo-pubescentia, lateribus longitudinaliter rugulosis, et plus minus nitidis. Long. 2·5—3·25 mm.

If I am correct in assigning a short series of examples to this one species, this is one of the most difficult and obscure forms in the genus. I cannot determine the sexes, for while some examples have larger antennae than others, some are intermediate in this respect. There is a good deal of variation in the puncturation also. The black colour, generally dense elytral puncturation, grey pubescence, moderate antennal club, with the inner angle of the basal joint sharper than usual, and the very widely separated eyes are the chief characters. The metasternum appears to be usually if not always carinate, but the carina is not strong and varies in development.

HAB. Hawaii, Kona district, above the wet belt.

(63) *Mirosternus vestitus*, sp. nov.

Rufescens aut castaneus, elytrorum apicibus subpallidioribus, totus sat dense flavo-pubescens. Oculi sat magni, sat late distantes. Antennarum articuli 3 ultimi mediocres, horum articulo primo sat elongato (minus lato) angulo interno haud acuto, apice haud fortiter producto. Elytra dense subtiliter punctata, parte apicali vel subtilius et densissime punctulata, lateribus nitidis et ruguloso-punctatis. Long. 3·25 mm.

There is not much difference between the four examples I have examined ; at most the basal club joint of the antennae is rather wider in proportion to its length in some than in others, and this might indicate a sexual distinction. It is, however, quite likely that all are of the same sex. The colour, clothing and puncturation seem to distinguish the species.

HAB. Oahu, Honolulu range, 1500 ft.

(64) *Mirosternus debilis* Sharp.

Mirosternus debilis Sharp, Tr. Ent. Soc. London, 1881, p. 525.

To this species I refer four examples taken on Oahu, and I believe it to be very variable in colour. Some of these specimens are black with a red spot on each wing case towards the apex, or there may be in addition to these a basal red spot on each, or the whole insect may be reddish, a darker area traversing the elytra behind the base. The puncturation varies in intensity. The eyes are small and very remote.

HAB. Oahu, Waianae mountains.

(65) *Mirosternus varius*, sp. nov.

Niger, elytris ad basim singulis saepe rufo-notatis, versus apices etiam saepe rufo-maculatis, sat nitidus. Oculi minores, latissime separati. Antennarum clava haudquaquam magna, articuli 1 et 2 angulo interno haud acuto. Pronotum nitidum, pallide pubescens, sed vix distincte punctatum. Elytra subaequaliter pallida pubescentia vestita, subtiliter sat aequaliter sed plus minus indistincte aut obsolete punctata. Long. 3·25 mm.

Except when more or less brightly marked with four red spots on the elytra (some or all of these spots may be absent), this is an obscure species. It is chiefly distinguished by the small eyes, moderate or small antennae (sometimes even the club being pallid) and the close but indefinite or subrugulose puncturation of the elytra, which is very shallow. The clothing of these is evenly distributed.

HAB. Kauai, 4000 ft.

(66) *Mirosternus hirsutulus*, sp. nov.

Brunneus, elytris nigro-marginatis, pubescentia pallida flavescente dense vestitis. Oculi minores, late separati. Antennarum clava angustula, elongata, articulo primo elongato, minus fortiter dilatato, angulo interno haud acuto. Pronotum subtiliter punctatum, sat dense pubescens. Elytra subtiliter, sat crebre subaequaliter punctata, lateribus nitidis, fere glabris, rugulosis et parce punctatis, punctis majoribus, leviter impressis. Long. 2·5—3 mm.

I have examined two specimens, which agree in nearly all respects, except that one is much larger than the other. The pubescence is rather coarse and shaggy. This character, together with the colour and the elongate narrow basal joint of the club of the antennae, the puncturation, and glabrous sides of the elytra will distinguish the species.

I have also a specimen, given me by Koebele, from Oahu, but without special locality, which differs in the colour of the elytra, the side margins not being black, and also another in which the basal joint of the club of the antennae is less elongate, wider in proportion to its length. I suspect these belong to the above species and the one with the wider club joint may be the other sex.

This species somewhat resembles *M. vestitus*, but that has smoother pubescence and larger eyes.

Hab. Oahu, Waianae mountains; Honolulu mountains (?), Koebele.

(67) *Mirosternus stenarthrus*, sp. nov.

Niger, dense ubique punctatus, dense cinereo-pubescens. Oculi minores, latissime separati. Antennarum clava angustior, articulo primo elongato, minus fortiter dilatato, angulo interno haud acuto. Pronotum distincte, subfortiter, ubique dense punctatum. Elytra dense, subaequaliter, distincte punctata, lateribus humeros juxta nitidis, ruguloso-punctatis. Long. 3—3·5 mm.

There are two examples of this species, which I have marked as ♂ and ♀, but it is not stated that they were taken in cop. If they truly represent the sexes, then these must be extremely similar in this species. The comparatively strong and distinct puncturation of the pronotum is characteristic of the species and will greatly facilitate its determination as also the basal antennal joint, which is longer than usual in proportion to its width.

Hab. Oahu, Honolulu mountains.

(68) *Mirosternus dimidiatus*, sp. nov.

Nigricans, dense pubescentia pallida flavescenti vestitus, elytris crebre punctatis. Oculi minores, latissime separati. Antennarum clava mediocriter magna, articulo primo fortius elongato, minus fortiter dilatato, angulo interno haud acuto. Pronotum subtilissime indistincte punctatum, dense pubescens. Elytra dense subtilissime punctata, lateribus versus humeros nitidis, parce punctatis, punctis majoribus, subobsoletis. Long. 2·5—2·75 mm.

In most respects very like *M. stenarthrus*, but much less in bulk, and at once distinguished by the feebleness of the pronotal puncturation. The pubescence of the elytra is rather rough, being directed in different directions. Only two specimens have been examined which agree very closely in all respects, and the sex cannot be determined without dissection.

Hab. Oahu, Honolulu mountains.

(69) *Mirosternus obscurus* Sharp.

Mirosternus obscurus Sharp, Tr. Ent. Soc. London, 1881, p. 523.

I refer to this species a series of specimens obtained on four of the islands. It varies in colour from brown to pitchy or almost black. The club joints of the antennae are usually pale, or at least not black, and compared with most species of the genus the club joints are unusually ill-developed. The eyes are small and very widely separated. The dense puncturation is continued right to the lateral margins of the elytra, and extends along these the whole way to the base. Very fresh examples from Oahu have the pubescence of the elytra more irregularly disposed than those from Hawaii, but otherwise seem to be identical.

Hab. Oahu, Molokai, Maui, Hawaii.—Widely distributed on Hawaii.

(70) *Mirosternus solidus*, sp. nov.

Major, fusco-niger, antennis testaceis. Oculi mediocriter magni, latissime distantes. Antennarum clava parum magna, articulo primo elongato, parum fortiter dilatato, angulo interno haud acuto. Pronotum crebre et distincte ubique punctatum, dense pallido-pubescens. Elytra distincte crebre punctata, apices versus densissime minutissime punctulata, ubique flavido-pubescentia, lateribus usque ad humeros dense punctatis. Metasternum haud carinatum; abdominis segmentum ultimum ventrale ad apicem sat distincte impressum. Long. 3·75 mm.

I have seen only one example of uncertain sex. The pubescence is of a rather obscure yellowish colour. The species is allied to *M. obscurus* Sharp.

Hab. Kauai, 4000 ft.

Fam. BOSTRYCHIDAE[1].

All the Bostrychidae found in the islands have, no doubt, been introduced by man. Some of them are now extremely common and *Schistoceros cornutus*, *Apate lifuana* and *Sinoxylon conigerum* may be considered as injurious insects, and perhaps some of the others should be placed with these.

Schistoceros Lesne.

Schistoceros Lesne, Ann. Soc. ent. France lxvii. 1898 (1899), p. 502.

(1) *Schistoceros cornutus* Pall.

Schistoceros cornutus Pall., sec Lesne, Ann. Soc. ent. France, 1898, p. 510.

Bostrichus migrator Sharp, Tr. Dublin Soc. 1885, p. 160.

Hab. Hawaiian Islands, abundant. I have taken the same species in Mexico. Hawaiian specimens vary greatly in size. Widely distributed in America and the Antilles.

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[1] By R. C. L. Perkins and D. Sharp.

XYLOTHRIPS Lesne.

Xylothrips Lesne, Ann. Soc. ent. France LXIX. p. 624.

(1) *Xylothrips religiosa* Boisd.

Xylopertha religiosa Boisd., Lesne, l. c.
Apate lifuana Mont., Ann. Soc. ent. France, 1861, p. 267.

HAB. Hawaiian Islands, very abundant.

XYLOPSOCUS Lesne.

Xylopsocus Lesne, Ann. Soc. ent. France LXIX. p. 627.

(1) *Xylopsocus castanoptera* Fairm.

Apate castanoptera Fairm., Essai sur les Col. de la Polyn. p. 77.

HAB. Oahu, Kauai and no doubt all the islands.

SINOXYLON Duftsch.

Sinoxylon Duftsch., Lesne, Ann. Soc. ent. France LXXV. p. 462.

(1) *Sinoxylon conigerum* Gerst.

Sinoxylon conigerum Gerst., Lesne, l. c. p. 504.

HAB. Oahu and no doubt all the islands.

DINODERUS Stephens.

Dinoderus Steph., Lesne, Ann. Soc. ent. France LXVI. p. 321.

(1) *Dinoderus minutus* Fab.

Dinoderus minutus Fabr., Lesne, Ann. Soc. ent. France LXVI. p. 329.

HAB. Oahu.—I have seen a specimen, determined by Schwarz. It was taken from bamboo furniture.

RHYZOPERTHA Stephens.

(1) *Rhyzopertha dominica* Fabr.

Rhyzopertha pusilla Steph., Ill. Brit. Ent. III. p. 354; *dominica* Fabr., Lesne, Ann. Soc. ent. France LXXVII. p. 332.

HAB. Oahu, Hawaii and no doubt the other islands.

Fam. LYCTIDAE[1].

Lyctus Fabricius.

Lyctus Fabr., Ent. Syst. I. 2, 1792, p. 502.

(1) *Lyctus brunneus* Stephens.

Xylotrogus brunneus Stephens, Ill. Brit. III. p. 117.

Lyctus brunneus Sharp, op. cit. p. 245.

We have received 26 specimens, varying in size from $4\frac{3}{4}$—$5\frac{1}{2}$ mm. long. This species has been transported to various parts of the world.

Hab. Oahu, Hawaii, Kauai.—Oahu: widely distributed (Blackburn); Waianae mts. 2000—3000 ft. (Perkins).—Hawaii: Kaumana, Hilo, 2000 ft. (Perkins).—Kauai: 4000 ft. (Perkins). Europe; introduced into Madeira, &c.

(2) *Lyctus*, sp.?

We have received two specimens of a species not previously found in the Sandwich Islands. Comparison with the specimens in the British Museum shows it to be apparently very close to *L. griseus* Gorham (Biol. Centr.-Am. III. 2, p. 212).

It is ferruginous, with a conspicuous yellow-grey pubescence. The elytra have series of large shallow punctures. The antennae are rufo-testaceous, lighter in colour and much more slender than those of *L. griseus*. The prothorax is slightly narrowed posteriorly, and has a shallow depression on the posterior part of the disc; such a depression is absent in *L. griseus*. The larger specimen is about $2\frac{3}{4}$ mm. long.

Hab. Oahu: Honolulu, XI. 1900 (Perkins). Probably introduced.

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[1] By Hugh Scott.

Supplement

to

Cerambycidae, Curculionidae and Proterhinidae.

Families previously treated in Vol. II., pp. 91–246.

Fam. CERAMBYCIDAE[1].

Aegosoma reflexum, huj. op. II., p. 96.

This fine Prionid has now been found on the N.W. Koolau range in July 1901, so that the island of Oahu is to be added to its recorded habitat in Hawaiia.

Astrimus hirtus Fairm.

A. hirtus, huj. op. II., p. 96.

This species has again occurred at Honolulu after an interval of 20 or 30 years, Dr Perkins having found a single specimen in the year 1900. This individual is a fine female, quite fresh, and it is probable that the species is really naturalized in Oahu.

Clytarlus fragilis Sharp.

C. fragilis Sharp, huj. op. II., p. 99.

Dr Perkins has obtained a female of this rare species from another locality. It is of very dark colour but agrees well with the specimens from the Palolo valley and the Waianae mountains.

Hab. Oahu, N.W. Koolau range, July 1901.

(1) *Clytarlus ultimus*, sp. nov.

Depressus, opacus, fuscus, cinereo-squamosus, antennarum, tibiarum femorumque basibus testaceis; elytris dense punctatis, fasciis irregularibus squamosis, utrinque prope scutellum elevatis, basi summo pallidiore; femorum clava brevi, abrupta. Long. 5—7 mm.

This is extremely similar to *C. fragilis*, but can be distinguished by the shorter and slightly more abrupt club of the femora. In this respect it is the most extreme form of the genus.

Hab. Oahu, S.E. Koolau range, Sept. 1900. Six specimens (Perkins). D. S.

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[1] By R. C. L. Perkins and D. Sharp.

(1) *Plagithmysus giffardi* Perkins[1].

P. giffardi Perkins, Proc. Hawaiian Ent. Soc. I., p. 96.

Very closely allied to *P. sulphurescens*, but the hair is whitish instead of yellow.

Hab. Hawaii, Kilauea (Perkins).

(2) *Plagithmysus fractus*, sp. nov.

Black, the base of the femora, the lower part of the sides of the pronotum, and the sternum red, the elytra with a fulvescent spot on each at the base, these spots separated by the dark suture, and not reaching the sides of the elytra outwardly. The antennae show a very faint reddish tint in part and the dull red colour of the femora shades into the black of the thicker portion. Elytra somewhat evenly covered with grey pubescence, so that the usual furcate mark is less distinct than usual. Thorax excessively densely sculptured and dull with a number of transverse ridges, some represented by raised tubercles only, the flanks smooth and shining hardly punctured below. Elytra very densely punctured all over, except on the humeral prominences, the furcate pubescent mark delimited by obscure longitudinal ridges outwardly and a black, less pubescent area at the base.

This species resembles only *P. cuneatus* of Oahu and is probably of the same average size.

Hab. Molokai; many fragments found in a decayed tree below the forest proper, but only one specimen worth taking, was amongst these. R. C. L. P.

(3) *Plagithmysus immundus*, sp. nov.

♂ Ferrugineus, femorum basibus testaceis; thorace vix pube pallida ornato, elytris maculis valde irregularibus pubescentiae pallidae vix ornatis. Long. 8—14 mm.

♀ Variabilis. Piceus, femorum tibiarumque basibus testaceis, tarsis fusco-testaceis; prothorace obsolete bivittato, elytris pube pallida irregulariter ornatis, basi interdum testaceo. Long. 8—14 mm.

This is an aberrant *Plagithmysus* somewhat approximating to *Clytarlus*. It is very variable, especially in the female sex, but there is always a great difference between the sexes as regards the general colour. It is also a connecting link between *Clytarlus* and *Plagithmysus*; the posterior legs of the male are shaped like those of *Plagithmysus*, though the apical portion is shorter and the basal part longer than in normal *Plagithmysus*. In the female the more slender legs approximate greatly those of the same sex of *Clytarlus pennatus*.

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[1] The species enumerated in this supplement by numbers prefixed are additions to the fauna.

The saddle along the middle of the thorax is rather wide, it is more elevated in front in the male than it is in the female, and it bears in each sex 2 or 3 feeble transverse ridges; the slight longitudinal depression that runs along each side of it bears a scanty pallid setosity, so feeble that it may be overlooked except in well-cleaned specimens; owing to the darker ground-colour of the female, these faint stripes are more distinct in it. The elytra are densely and finely punctured and have no trace of a glabrous area; the variegation of the elytra is irregular and so variable that it cannot be easily described. The legs are very slender in the female, and the clavate portion in it is always infuscate so as to contrast strongly with the pallid basal part; the tibiae, though yellow are always darker at the tip, in the female more extensively than in the male. The hind tarsi are slender and long. In each of the sexes there is a very definite spot of white pubescence at the posterior extremity of the metasternal episterna.

Dr Perkins reared a series of about 100 specimens of this species from wood found on North Kona, but of what tree I do not know.

HAB. Hawaii, North Kona; the specimens emerged in Nov. and Dec. 1900. D. S.

Plagithmysus solitarius Sharp.

P. solitarius, huj. op. II., p. 106.

♀ Nigricans, antennis, tibiis tarsisque rufis, femorum basibus testaceis; elytris nigro-rufis, maculis albidis ornatis; thorace parum discrete albido-vittato; tibiis posterioribus dense nigro-hirsutis, tarsis albido-hirtis. Long. 11—16 mm.

This species has hitherto been known from a single male individual. The female has now been discovered and proves to be very different in colour from the male. Twenty-one specimens recently found are about eight of them females, the remainder males. Two pairs were found in copula, so that there is no doubt as to the correct association of the two forms as the sexes of one species. Some of the very small specimens have the male coloration, but are certainly females.

In the females found in copula the concolorous ferruginous ground-colour of the male is replaced by black, while the elytra are midway between black and ferruginous.

The species varies very much in size, the length being from 8—14 millimetres.

The female of *P. solitarius* is very like the male of *P. aequalis*, but it has the hind tibiae densely hirsute, and the marks do not coalesce to form on the posterior part of the elytra a white stripe.

The difference in colour of the sexes found in copula is very remarkable, and so is the variation in colour of the female. It is, however, quite possible that a larger series might show that the male is also variable in colour in a similar manner.

HAB. Oahu, Koolau range both to the north-west and south-east, and at various dates from April to September 1901 (Perkins). D. S.

(4) *Plagithmysus elegans*, sp. nov.

Rufus, prothorace ochraceo-vestito, post oculum vitta denudata, dorso longitudinaliter nigerrimo; elytris dense vermiculatim albido-setosis, post medium utrinque area glabra; tarsis posterioribus albido-hirtis; femoribus posterioribus basi flavescente; corpore subtus ochraceo-maculato. Long. corp. 14 mm.

This is the most elegant of the Hawaiian *Plagithmysus*; it is not at all closely allied to any other, and may be placed as the first species of the genus. The broad black space on the middle of the thorax is of a narrow oval form, and contrasts in a most striking manner with the broad yellow area that joins it on each side; there are no ridges across it; in front it forms an abrupt perpendicular elevation, and falls away more gently behind. The elytra are red, vaguely but broadly infuscate behind the base, and on this part densely and coarsely punctured: bearing white spots of setosity which, in some places, are elongate or confluent so as to form sinuous markings; towards the apex each elytron has an elongate, glabrous, shining area. The legs are moderately long, the hind femora a little darker red than the others, but the slender basal portion is pale yellow: there is not the least tendency to a knob at the apex, but they bear a good deal of delicate, erect, white setosity. The hind tibiae are only moderately long, are strongly laterally compressed, and densely clothed with hair that is nearly black in colour; the hind tarsi are equally densely clothed with pure white hair, and contrast therefore with the tibiae in a very striking manner. The middle tarsi bear white hairs along the inner margin only. The sides of the body beneath have conspicuous ochreous marks, and the breast has a good deal of white pubescence, which is dense on the mesosternal process. Described from a single individual of the male sex.

In the style of coloration and the shape of the thorax this charming insect makes a distinct approach to the genus *Callithmysus*, but the legs remain quite different.

HAB. Hawaii; North Kona in 1900 (Perkins). D. S.

(5) *Plagithmysus simplicicollis*, sp. nov.

Rufus, elytris ad basin et ad suturam ochreo-tomentosis, margine laterali etsi anguste-tomentoso, post basin fusco-biplagiatis, femoribus posterioribus et intermediis basibus testaceis, tarsis posterioribus albido-hirtis. Long. 14—15 mm.

This fine *Plagithmysus* may be placed near *P. bishopi*, from which, as well as from most of the other allies, it may be at once distinguished by the unicolorous prothorax, entirely destitute of white stripes. The two large spots of dark colour near the base of the elytra are very conspicuous and very sharply limited, each is narrowly separated from the suture by the ochreous pubescence and extends all across the disc of the elytra, becoming narrower externally. The legs are red, which allows the species to be readily separated from *P. collaris*. The male only is known; it has the front tarsi a good deal dilated, the middle tarsi clothed with white hairs along the inner edge. The hind tibiae are very hirsute with erect tawny hairs. The abdomen has a band of white hairs on each side. The mesothoracic and metathoracic epimera are densely clothed with ochreous scales. Three specimens.

The type specimen of the species is rendered additionally interesting as being an exponent of a form of monstrosity that has, I believe, not before been observed. To the second joint of the left anterior foot there is attached—in addition to the ordinary terminal joints—a supernumerary termination of the tarsus, consisting of two joints placed dorsum to dorsum, and so closely amalgamated that they look like a single segment clothed on its two exposed aspects with hairs normal to an under surface of the foot. This supernumerary appendage is terminated by a short, thick, claw-joint ending in a single small claw. The true foot is a little shorter than is natural.

This superadditional fourth joint is not lobed, and it may be the case that it is not two joints, but only one bilobed joint folded.

Hab. Hawaii. North Kona, 1900 (Perkins). D. S.

Callithmysus microgaster Sharp.

Callithmysus microgaster, huj. op. II., p. 113.

Two additional specimens have now been found of this very rare insect. They are small, being only 10 mm. long, and the clothing of the hind tibiae is much shorter than in the typical form.

Only six individuals are known of *C. microgaster*. They come, I believe, from three different spots on Oahu, and seem to indicate the probable existence of local races.

Hab. Oahu, N.W. Koolau range, April 1901, two specimens (Perkins).

(1) *Callithmysus koebelei* Perkins.

Callithmysus koebelei Perkins, Proc. Hawaiian Ent. Soc. I., p. 210.

Ferrugineus, prothorace dorso plaga magna, rufo-ferruginea, pubescentia albida delimitata; elytris dense punctatis, singulo posterius ad suturam linea angusta pubescentiae albae, lineis his mox ante medium valde divergentibus; tibiis posterioribus dense hirsutis, ad basin pubescentia albida; tarsis posterioribus albido-hirsutis; femoribus subtus plus minusve infuscatis, ad basin testaceis. Long. 8—16 mm.

This species resembles in coloration certain forms of *Plagithmysus*—e.g. *P. bishopi* and *P. bilineatus*—and it also lacks the dense black pubescence at the apex of the hind femora that is so conspicuous in *Callithmysus microgaster*. But in the shape of these femora it agrees with *C. microgaster*. It varies much in size, but not in other respects. It is very difficult to distinguish the sexes.

Mr Koebele, in honour of whom the species has been named, secured a small series at various dates.

HAB. Oahu, mountains near Honolulu. D. S.

Callithmysus cristatus Sharp.

Plagithmysus cristatus Sharp, huj. op. II., p. 113, pl. VI. fig. 21.

A series of 21 additional examples of this interesting but little known species. I remarked, in 1896, on the similarity in shape of the femora of this species with those of the genus *Callithmysus*, and now that *C. koebelei* has been discovered, it is clear that *cristatus* must be transferred to *Callithmysus* notwithstanding the slender femora of its female.

In the 21 specimens recently acquired there are six females; the slender femora is a constant character of this sex of *C. cristatus*, and the female is also generally much darker in colour than the male; this distinction is, however, variable, one individual being but little darker than the other sex. The male varies little, except in size.

Although the dense black hairs at the apex of the hind femora found in *C. microgaster* are absent in *C. koebelei* and *C. cristatus*, yet there is a peculiarity in this spot in both the species in question. In *C. koebelei* the pubescence there is dark brown instead of whitish, as on the rest of the femur: and in *C. cristatus* ♂ the pubescence in the same place is finer, darker and closer.

COPTOPS Serville.

Coptops Serville, Ann. Soc. ent. France 1835, p. 64.

(1) *Coptops aedificator* Fabr.

Lamia aedificator Fabr., Ent. Syst. I. pt. 2, p. 275.

Three specimens of this species were found on Oahu by Mr Perkins in 1900 and 1901. It is widely distributed in the East and, as it is of large size, has probably been recently introduced. It is only like *Prosoplus bankii*, but is more than twice the size.

HAB. Oahu (Perkins). Java, Aden, etc. etc.

Fam. CURCULIONIDAE[1].

(1) *Rhyncogonus sharpi*, sp. nov.

Black or pitchy black, shining, legs often more or less reddish, tarsi always rufescent, antennae black or reddish, whole insect with appressed squamous hairs, in fresh specimens flavescent about the eyes and at the sides of the pronotum.

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[1] By R. C. L. Perkins.

Head rugose-punctate beneath the clothing, eyes convex, prominent, first funicle joint of antennae notably longer than the second. Pronotum smooth and shining between the punctures and with a median smooth line not extending the whole length. Elytra shining but rough between the series of punctures, in very fresh specimens the surface nearly concealed beneath the squamosity, pseudepipleura regularly clothed all over.

Male with the apical ventral segment broad at the apex and, like the three preceding, densely clothed with hairs; the two preceding and the metasternum with denser patches at the sides, less dense between these and very closely punctured. Length 9—14 mm.

HAB. Molokai, mountains.

(2) *Rhyncogonus simplex*, sp. nov.

Black or piceous, the antennae and legs generally more or less obscurely rufescent in parts, the tarsi always so, clothing not dense, of pale and fine appressed hairs, denser along the sides of the pronotum, forming an entire band or broken into a denser anterior and posterior spot. Pseudepipleura clothed like the dorsal surface of the elytra. Head punctate strigose, first and second funicle joints of antennae nearly equal. Pronotum shining between the punctures, which differ in size. Elytra with about 13 rows of regular punctures dorsally, between these very minutely tuberculate.

Male beneath with the apical ventral segment truncate or widely rounded at apex and with the preceding densely pubescent, in the female these segments are also more pubescent than the others, the apical one narrowly rounded at apex; third segment excessively densely punctured, much more finely than the second. Length ♂ ♀ 7—11 mm.

There appear to be two forms of this species, the one more densely pubescent on the elytra and with the hairs more approaching a squamose condition. This is much the rarer and the two are found in company, while there appears to be no other point of distinction. The species is (like most others of the genus) variable, and while the males are usually more depressed than the females, this is not always the case.

HAB. Molokai, mountains, below the forest, 700—1000 ft.

(3) *Rhyncogonus extraneus*, sp. nov.

Female sordid black or fuscous inclining to red, the antennae and legs sometimes more or less of this colour. Clothing pale, in part subsquamous, very dense all over in fresh examples, in less fresh ones denser on the legs and sides of the pronotum, with a tendency to form maculae, especially on the pseudepipleura. Head roughly sculptured, antennae with the first funicle joint hardly as long as the second, which is much longer than the third. Eyes strongly prominent and convex. Pronotum with distinct punctures not very dense, but with finer interstitial ones connecting them, lateral lines of clothing distinctly squamose. Elytra with series of punctures, which are finer than is usual in the genus, the clothing of depressed pubescence with a tendency to become maculate, and with numerous short erect setae. Basal abdominal segment beneath densely punctate, some of the punctures deeper and larger than the others.

Length 8 mm. In very fresh and densely clothed specimens the sculpture is almost entirely hidden.

Hab. Oahu; lower slopes of the mountains, below the forest.

(4) *Rhyncogonus oleae*, sp. nov.

Black or piceous, probably sometimes red, clothed with fine pale hairs.

Head between the eyes rugose-punctate, the rostral portion in front of this usually more sparsely punctate. Eyes moderately convex. Two basal joints of the funicle of the antennae slender and strongly elongated, the first a little longer than the second, but in one ♂ they are of equal length, third and following much shorter than the second, but all of them elongate, basal joint of club distinctly longer than the last funicle joint.

Pronotum generally closely and sometimes rugosely punctured, generally more densely in the ♂ than the female, sometimes quite dull, sometimes smooth and shining between the punctures, which are usually uneven in size; a median smooth line is distinct, except sometimes posteriorly; sides of thorax with denser and more conspicuous pubescence in the female, usually less clothed in the ♂. Elytra finely pubescent, with about 12 rows of punctures on the dorsal surface, the pseudepipleura also pubescent, but not maculately so. Two apical segments of the abdomen beneath in the ♂, with somewhat dense pubescence, at least much denser than on the preceding segments; in the female the segments are more thinly clothed, the clothing of the penultimate segment not much different from that of the preceding, the metasternum at the sides much more conspicuously pubescent than in the middle.

Most similar to *R. freycinetiae*, which is a much blacker insect and otherwise different in detail.

Hab. Oahu, Waialua 1200 ft.; on *Olea*, *Euphorbia*, etc.

(5) *Rhyncogonus fuscus*, sp. nov.

Fusco-niger, setis appressis rufescentibus vestitus, opacus, antennis tibiis (plus minusve) tarsisque rufescentibus. Caput minus dense punctatum, oculis fortiter prominentibus. Pronotum inaequaliter punctatum, peropacum, latum, lateribus fortiter rotundatis. Elytra vix maculatim ubique rufo-setosa, pseudepipleuris dorso minus dense vestitis, opaca, interstitio tertio subelevato. Antennarum funiculi segmentum primum et secundum aequilonga, sequentibus, quae aequilonga sunt, multo longiora. Long. 7·5 mm.

Hab. Oahu; Waianae mountains.

Rhyncogonus koebelei Perkins.

R. koebelei Perkins, huj. op. II., p. 126, pl. VII., fig. 5.

What I believe to be the above species is common on Oahu from Manoa valley to the south-eastern extremity of the Koolau range. It occurs as high as 2000 ft. in the mountains, but is found at much lower elevations—under 1000 ft. Like others of the genus, it is quite variable. The apical ventral segment of the female is pointed and much less densely hairy than that of the male. Varies very greatly in size.

Pantomorus fulleri Horn.

Pantomorus olindae Perkins, huj. op. II., p. 130 (1900).

Aramigus fulleri Horn, Proc. Amer. Phil. Soc. XV. 1876, p. 94.

This species was originally introduced into the island of Maui; subsequently it spread to Oahu, and still more recently to Hawaii. It does great damage to cultivated plants and forest trees in the mountains, but does not become abundant on the lowlands, at any rate in the drier districts. It is polyphagous. It is the *Pantomorus olindae* of my earlier paper on the weevils. Seeing that it was evidently introduced into Hawaii from the warmer parts of America, I did not look for its description amongst the N. American fauna, it being no doubt an introduction also into California and other parts from the same region. It seems to me not separable generically from true *Pantomorus*.

(1) *Acalles pusillissimus*, sp. nov.

Nigricans, antennis, rostro, tarsisque rufo-testaceis. Antennarum articulus secundus subovatus et elongatus, sequentibus brevissimis et transversis. Pronotum elongatum anterius posticeque angustatum, setis brevissimis nigris inconspicue vestitum. Elytra parum lata, lateribus aequaliter rotundatis, interstitiis (primo excepto) aequaliter convexis, haud irregulariter elevatis, plaga pallida squamosa post humeros versus suturam oblique utrinque currente. Long. 1·75 mm.

This is the smallest species of Hawaiian *Acalles*, and is distinguished by its small size, narrow form and the patch of pale squamosity, which tends to form a fascia on the elytra and the extremely short joints of the funicle of the antennae. Unfortunately the type is not in good condition. A specimen, which I am not able to find in the collection, was much more perfect, when taken, and not abraded like the one described. I have met with it still more recently in the mountains near Honolulu.

HAB. Oahu; mount Tantalus; occasionally met with, but not common.

(1) *Nesotocus giffardi*, sp. nov.

Very closely allied to the other species of the genus, but more shining. Pronotum with some scanty pubescence laterally, otherwise almost bare, very smooth and shining and with fine and rather remote puncturation. Anterior femora more swollen than in well-developed *N. munroi*. Elytra with the pubescence more scanty than in the other species. Scape of antennae rather strongly dilated at the apex; funicle joints longer and slenderer than in *N. munroi*.

A very fine species, of which the male only is known.

HAB. Oahu; Tantalus in December.

Oodemas parallelum Perkins.

Oodemas parallelum P., huj. op. II., p. 162.

A series of specimens of both sexes, which I refer to the above species, exhibit considerable variation in the shape and sculpture of the pronotum, the punctures being much stronger in some than others, and the surface in some is dull. Females are usually larger than the males, and the second tarsal joint is much smaller. The puncturation of the elytra is variable, the interstitial punctures being very strongly developed in some examples, in fact almost sufficiently so as to be confused with those of the striae. Some individuals are much narrower than others.

Oodemas halticoides Bl.

Oodemas halticoides Blackb., huj. op. II., p. 169.

This species is not rare in the mountains round Honolulu, and is not only found in the dead wood of various forest trees, but also in the stems of low-growing plants.

Oodemas robustum Bl.

Oodemas robustum Blackb., huj. op. II., p. 169.

I have referred a single example to this species, without, however, having examined the type. I did not meet with it during my earlier visits to the islands.

(1) *Oodemas solidum*, sp. nov.

Brassy-black, the elytra more or less shining, ovate. A large species, very similar to *O. grande* of Kauai, from which it is easily distinguished by its conspicuously metallic colour, and the rows of punctures on the elytra are placed in distinct grooves owing to the more or less convex interstices.

Rostrum not densely nor coarsely punctate, apically at least strigose-punctate. Pronotum broad, generally dull and very finely but distinctly punctured. Elytra with the interstices conspicuously punctured, the punctures much more fine than the rather coarse and deep serial ones. The antennae vary a little, the second joint usually appearing stouter and shorter than the third, but when the basal constricted part of the former is fully exposed, it is sometimes as long as the latter. Length 4·5—6 mm.

Closely allied also to *O. corticis*, but at once distinguished by the coarseness of the serial punctures of the elytra.

HAB. Maui; Haleakala; a common species, I believe, previously confounded with the very abundant *O. corticis* of Maui, Molokai and Lanai.

(2) *Oodemas hawaiiense*, sp. nov.

Brassy, robust, the tibiae and tarsi testaceous, rostrum dilated apically, second and third joints of the antennae subequal when the second is fully exposed.

Allied to *O. punctulatissimum* of Oahu by the second joint of the funiculus being much less elongate than is usual in the group of the genus, but very distinct by the larger serial punctures of the elytra, which are coarse as compared with the very feeble interstitial ones. The punctures in the series are remote, and the inner series fail at about the middle of the length of the elytra or before this. There is no striation, except posteriorly, where the interstices become convex. The eyes are hardly at all convex. Length about 3·5 mm. I have not seen the male of this species.

HAB. Hawaii, Mauna Loa at 4000 ft. Probably common, but overlooked.

Orothreptes callithrix Perkins.

O. callithrix Perkins, huj. op. II., p. 147.

Originally described from Kona, Hawaii, this species has now occurred on mount Tantalus near Honolulu. Though I did not take many specimens, I found it quite common in the month of November. It will probably be found on the other windward islands.

HAB. Hawaii. Oahu; mount Tantalus, not rare.

Pentarthrum blackburni Sharp.

Pentarthrum blackburni Sharp, huj. op. II., p. 147.

On several occasions I have seen imported boxes, with the wood largely destroyed by a *Pentarthrum*, which appears to be the above species. It is no doubt an imported insect.

Pseudolus hospes Perkins.

P. hospes Perkins, huj. op. II., p. 149.

This has now become one of the commonest of Hawaiian beetles and has extended far into the forests, apparently largely supplanting *P. longulus*. It was originally found in boards of foreign timber in Honolulu, and I have since found it in the wood of crates freshly landed from Fiji. In the latter country *P. longulus* and *Phlocophagosoma tenuis* also occur with it, and have also been imported into Honolulu.

Fam. PROTERHINIDAE[1].

(1) *Proterhinus podagricus*, sp. nov.

Niger aut sordide rufescens, elytris rufescentibus, femoribus nigricantibus, antennis rufis, apices versus nigris vel obscurioribus. Caput cum pronoto parum dense aureo-squamosum, hoc ad angulos posticos plaga parva pallide-squamosa densiore ornato. Elytra fere aequaliter griseo-squamosa, postice setis erectis albidis sparse vestita. Antennae fortius elongatae, articulo primo elongato et incrassato, clava distinctissime 3-articulata, articulis elongatis. Femora maris fortissime incrassata. Long. 2·5—3·25 mm.

A very distinct species by the enormously thick femora of the male, the more than usually elongate antennae, with long robust scape and long and distinctly three-jointed club. Eyes rather small, thorax rather long and more or less distinctly tri-impressed. Elytra simply convex, rather parallel-sided, and with the humeral angles strongly produced. In form it greatly resembles *P. kamptarthrus*, but the male is easily distinguished by the simple third antennal joint, the female by the rather less slender antennae, the shorter and less thin third joint, which is quite simple, while in *P. kamptarthrus* it shows a trace of the form observable in the male. In the latter species too, the pronotum appears to be rather narrower and more elongate.

HAB. Oahu; Waianae range.

Proterhinus leiorhynchus Perk.

P. leiorhynchus Perk., huj. op. II., p. 200.

I have now obtained a male of this species, which is very closely allied to *P. ruficornis*. Like the female, it may be easily distinguished from that species by the much larger antennal scape, but the character of the thoracic impressions is variable in both species.

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[1] By R. C. L. Perkins.

Proterhinus ruficornis Perk.

P. ruficornis Perk., l. c.

Varies in size, length of pronotum and elytra, and in colour, but the antennae appear to be always unicolorous. In *P. adelus*, which has the same habits as *P. ruficornis*, the antennae vary in colour, sometimes they resemble those of the latter, but sometimes the apical joints are dark. The species are easily separated by the differences in the pronotum and the greater development of the antennae in *P. ruficornis*.

Hab. Oahu; mountains round Honolulu, 1500 ft. and upwards, in company with *P. adelus*.

Proterhinus deinops Perk.

P. deinops Perk., huj. op. II., p. 201.

The variation in this remarkable species is of the same nature as that exhibited by many others of the genus. The rostrum of the female varies slightly in length and form, the pronotum and elytra are much narrower and more elongate in some than in others, and large examples are fully twice the bulk of small ones. Nevertheless it remains always easy of recognition by the peculiarities of the head and eyes.

Proterhinus squamicollis Perk.

P. squamicollis Perk., l. c.

A small series of examples were taken in the mountains near Honolulu and other parts of the Koolau range. They agree well with the original specimens and the species is quite distinct from any other.

Hab. Oahu; widely distributed in the Koolau range, but apparently not abundant. I have taken it on *Bobea elatior*, but do not know whether it is confined to this tree.

Proterhinus adelus Perk.

P. adelus Perk., huj. op. II., p. 202.

I have examined a fine series of this species. In its commonest form it is remarkable for the very strong and abrupt constriction of the pronotum anteriorly, and the very well-marked three-jointed antennal club. The eyes are large and prominent, the basal abdominal segment coarsely punctate even on the disc.

It varies in colour, clothing and size, in the relative length and width of the elytra and of the pronotum, and in the length and colour of the antennae. In some examples the constriction of the thorax is much less abrupt, and in extreme varieties almost or quite wanting.

The form with unicolorous red antennae and extremely abrupt constriction of the thorax may be distinguished as var. *adeloides*.

Proterhinus adelus var. *chrysadelus* var. nov.

Thorax and elytra evenly and similarly clothed all over with golden or greyish-golden squamosity, the whole insect reddish, except for some fuscous spots on the elytra, these spots being free from the appressed clothing. Antennae red at the base, dark apically. Thorax depressed in front and narrowed, sometimes more abruptly constricted, the posterior impressions faint or absent. Erect setae on elytra fine, white, long and conspicuous.

Proterhinus adelus var. *constricticeps* var. nov.

Head strongly transversely constricted behind the eyes. In other respects apparently not differing from some other specimens of *P. adelus*, some of which also show a tendency to constriction.

HAB. Oahu; this variable species occurs throughout the Koolau range.

(2) *Proterhinus maurus*, sp. nov.

Magnitudine grandi, robustus, niger, lobis tarsorum piceis aut obscure testaceis. Antennae subrobustae sed fortius elongatae, clava distincte 3-articulata; oculi permagni et fortiter prominentes. Pronotum parum squamosum, setis curvatis conspicue vestitum, antice fortiter impressum, post medium utrinque fortiter rotundatim foveatum, postice ad medium impressum, angulis posterioribus prominulis et macula albida ornatum. Elytra fusco-setosa, utrinque juxta scutellum ad basim tuberculata, post media setis albis bisignata, pergrosse punctata, parum squamosa, angulis humeralibus fere rectis. Long. circiter 5 mm.

A most distinct species which cannot be confused with any other of the genus.

HAB. Oahu; Koolau range, 1800 ft. On *Pelea*.

(3) *Proterhinus echidna*, sp. nov.

Rufescens aut ferrugineus, elytris mediis utrinque nigro- vel fusco-notatis, antennarum clava nonnunquam obscuriore. Minus dense aureo- vel griseo-squamosus, elytris pedibusque setis gracillimis et perelongatis vestitis. Antennae graciles, elongatae, clava distincte 3-articulata, oculis prominentibus, magnitudine mediocribus. Pronotum antice fortissime impressum. Elytra latiuscula, lateribus rotundatis, angulis humeralibus acutis. Long. 2—3·25 mm.

A very distinct species by the extremely long, fine setae of the elytra and legs, the red colour of almost the whole insect, the deep thoracic impression and the shape of the elytra. Like other species of the genus, it varies in the development of the antennae, eyes, &c.

HAB. Oahu; mountains near Honolulu on *Gouldia*.

(4) *Proterhinus myrsineus*, sp. nov.

Rufescens, pronoto saepe infuscato, sive piceo, elytris nigro-notatis. Antennae longitudine mediocres, rufae, clava distincte 3-articulata. Pronotum parce squamosum, setis curvatis ad latera distinctis, antice constrictum et fortiter impressum, juxta medium impressionibus duabus rotundis distinctis, circa has impressiones densius squamosum. Elytra submaculatim pallide squamosa, setisque perconspicuis albidis et crassiusculis vestita, angulis humeralibus acutis et fortiter productis. Pedes et antennae rufi. Long. 2—3 mm.

The general red colour, the antennae and legs being red, the pronotum with a dense patch of appressed squamosity adjoining the circular impressions, the remainder being sparsely clothed, the very conspicuous erect white setae of the elytra, which have the humeral angles strongly produced, distinguish the species rather easily.

Hab. Oahu; mountains near Honolulu, 1500 ft., on *Myrsine*.

(5) *Proterhinus myrsineoides*, sp. nov.

Extremely similar to *P. myrsineus*, but the club of the antennae and sometimes some of the preceding joints are black or nearly so, the posterior round impressions of the pronotum are obsolete or very faint, their position being indicated by absence of squamosity, the femora are more infuscate, and the erect setae of the elytra are more elongate and slenderer. This insect also has a smoother appearance than the preceding.

One of the examples is larger than the others and the joints of the antennae are, as is often the case in other forms, longer and thinner than those of the smaller examples.

Hab. Oahu; Koolau range, 1500 ft., Waialua district.

Proterhinus angularis Sharp.

P. angularis Sharp, huj. op. II., p. 243.

It is now quite clear to me that the specimens from Oahu and all the windward islands that I referred to *P. angularis* S. are quite distinct from that species. *P. angularis* appears to be almost, if not entirely, confined to the mountains in the neighbourhood of Honolulu and is not very common. It is of depressed form, the elytra bear abundant and conspicuous fuscous erect setae. The antennae are always moderately elongate.

Hab. Oahu; mountains near Honolulu.

(6) *Proterhinus subangularis*, sp. nov.

To this form, for which I propose the specific name *subangularis*, belong nearly all the series of examples referred by me to *P. angularis* in F. H. II., 243. It is of narrow form, often extremely narrow, and is not so depressed as *angularis* and *subplanatus*. The elytra are conspicuously clothed with long white and dark erect setae. The antennae normally are long and slender and conspicuously setose. There is much variation in the shape of the thorax and the humeral angles differ in form in different examples. I suspect it will prove to be divisible into several distinct species or subspecies. It is a narrower insect than *P. obscuricolor* and the dark setae on the elytra are more developed. I have chosen a Molokai specimen as the type.

HAB. Oahu, Molokai, Maui, Lanai, Hawaii.

Proterhinus obscuricolor Perk.

P. obscuricolor Perk., huj. op. II., p. 202.

This form is no doubt exceedingly close to those which I assigned to *P. angularis* in my earlier collections. The limits of the species are at present uncertain and I assign to it diminutive examples, which certainly approach *P. subplanatus*, but I am not at all certain that careful study in the field will not show that these are distinct from either. From notes attached to some of these small examples I find that they were collected in the bark of twigs of *Pelea*, whereas *P. obscuricolor*, *P. angularis*, *P. subangularis* and *P. subplanatus* are certainly all attached to *Straussia*. In examples taken from *Pelea* the base of the elytra is usually dull red. The variation in the length of the antennae is very great.

HAB. Oahu; mountains near Honolulu.

Proterhinus subplanatus Perk.

P. subplanatus Perk., huj. op. II., p. 205.

Another very variable species of the *angularis* group, generally easily recognized by its depressed form, much less setose than true *angularis* and the entirely black or at least very dark antennae. It is very variable in the structure of the antennae, the joints having a strong tendency to become shortened.

HAB. Oahu; Koolau range, common beneath bark of *Straussia*.

Proterhinus longulus Sharp.

P. longulus Sharp, huj. op. II., p. 208.

Varies greatly in size, and in some examples the elytra are largely black. I have examined many examples, the species being very common on tree-ferns in the mountains throughout Oahu.

HAB. Oahu generally, from 1200 ft. upwards.

Proterhinus denudatus Perk.

P. denudatus Perk., huj. op. II., p. 203.

This may prove to be a variety of *P. longulus*. It differs chiefly in the white, not flavescent, erect setae of the elytra and in the darkened apical joints of the antennae, sometimes nearly all the joints are black. This species is extremely variable in size and structure, and it is almost impossible to decide as to its distinctness from *P. longulus*. It too is a fern feeder, and while not affecting tree-ferns, is found in the thin wiry stems of the so-called stag-horn fern. I have seen a few examples that I cannot certainly assign to either species.

HAB. Oahu ; common in both ranges.

(7) *Proterhinus platygonioides*, sp. nov.

P. platygoniadi persimilis, sed capite post oculos haud fortiter constricto distinguendus.

Extremely like *P. platygonias*, but at once distinguished by the absence of the constriction behind the eyes. The species varies in size and colour. The antennae are sometimes entirely dark, sometimes entirely dull red, sometimes red at the base and black apically.

HAB. Oahu ; Waianae mountains at 2000 ft.

Proterhinus seticollis Perk.

P. seticollis Perk., huj. op. II., p. 207.

I have examined a series of this species, of which none exactly resemble one of the original examples, which is available for examination, but, as they only differ slightly in colour and form, I believe I have assigned them correctly.

(8) *Proterhinus heterostictus*, sp. nov.

Further study and many additional specimens of the two species show that *P. heterostictus* considered in Vol. II., p. 205, as a variety of *P. vestitus* Sharp, is quite distinct from that species. The antennae are never of the clear red colour of true *vestitus*, but are either entirely black, or piceous, or have the basal joints only distinctly or obscurely red. Large examples of the species considered by me as *P. simplex* are excessively like some specimens of *P. heterostictus*, but the strong puncturation of the middle of the basal abdominal segment will distinguish the latter. Superficially some specimens are almost exactly like certain varieties of *P. adelus*, but the less marked club of the antennae will separate them.

HAB. Oahu ; in the mountains behind Honolulu and elsewhere. The original specimens were from the Waianae mountains, where also I have since seen it.

Proterhinus vestitus Sharp.

P. vestitus Sharp, huj. op. II., p. 205.

This is a very distinct species with the antennae always unicolorous red, or at most a little darker apically and the pronotum generally abruptly constricted in front. It varies considerably in size, the antennae are sometimes shortened, and the proportion of black and red colour of the elytra is also variable. I have seen some specimens entirely red with only faint fuscous markings on the elytra. The species is very easily recognized.

HAB. Oahu; in the mountains around Honolulu, but I did not take it elsewhere on the island. It chiefly affects *Aleurites*, *Pipturus* and *Pisonia* and is not found on the highest peaks.

(9) *Proterhinus transversalis*, sp. nov.

Rufescens, thorace plus minusve infuscato, elytris nigro-maculatis, antennarum clava nigricante. Antennae graciles, fortius elongatae, clava 3-articulata; oculi minores. Pronotum parum latum, aureo-squamosum, antice fortissime transversim impressum, impressionibus posterioribus rotundis, minus profundis. Elytra latiuscula, remote punctata, setis albidis erectis perparce sed conspicue vestita, humeris fortiter acute productis. Long. ♀ circiter 2 mm.

This species is very distinct from any other on Oahu. The example examined is not quite mature and I suspect undersized; so that the characters observed are likely to be accentuated in larger individuals.

HAB. Oahu; Waianae mountains 2000 ft.

(10) *Proterhinus excrucians*, sp. nov.

Under the name of *P. simplex* Sharp I formerly placed a number of specimens, which I considered might be referred to that species as large and well-developed individuals. *P. simplex* was originally described from two apparently immature males, and other specimens afterwards sent over by Mr Blackburn were referred to it by Dr Sharp, though superficially at least they did not resemble the type. Whether Mr Blackburn ever obtained additional examples agreeing with the type is doubtful, and I have never myself seen any. I therefore propose the above name for the specimens which I formerly considered to be *P. simplex* S., as I no longer believe that the two are the same species. In any case *P. excrucians* remains so variable, even if the small and narrow examples be removed and considered as varieties of true *P. simplex*, that I am at a loss to characterize it better than I have already done under *P. simplex* in the earlier part of this work.

HAB. Oahu; abundant near Honolulu and throughout both mountain ranges.

(11) *Proterhinus facilis*, sp. nov.

Nigro-fuscus, thorace minus dense aureo-squamoso, antennarum articulis basalibus rufis. Oculi parvi; pedes graciles; pronotum antice tantum impressum. Elytra perparce squamosa, sed setis erectis albidis conspicue vestita, fortiter elongata, angulis humeralibus distinctis, fere rectis, vel leviter productis. Long. ♂ circiter 2 mm.

A very obscure species chiefly remarkable for its narrow form and the elongate elytra, which are nearly devoid of squamosity, but bear conspicuous white erect setae. The base of the elytra and sometimes some spots behind are obscure reddish in colour. The antennae are of moderate length, the club three-jointed, but its first joint is much less stout than the second. The legs are more slender than is usual in the genus.

Hab. Oahu, in both ranges, apparently rare.

Proterhinus dispar Sharp.

P. dispar Sharp, huj. op. II., p. 243.

Attached to *Wikstroemia foetida* and distributed all over the Koolau range of Oahu.

Proterhinus obscurus Sharp.

P. obscurus Sharp, huj. op. II., p. 210.

There is some doubt as to the identity of the type of this species with the examples, which I originally referred to it. It was described originally on a single female. As I understand it, after paying very special attention to the matter in the field, *P. obscurus* is a very variable species. The commonest form is a dark insect, the antennae being often entirely black or very dark red and the legs of the same colour or the basal joints of the former may be red, more frequently in the female. The elytra are usually obscurely red at the base and generally with other red markings posteriorly. These spots bear grey or golden squamosity. This form is extremely abundant on the 'Olomea' trees in the mountains round Honolulu and may be known as var. *perobscurus*.

Specimens collected from the 'Kalia' (*Elaeocarpus*) are altogether more rufescent and the legs are red, but I think they are the same species as the above, as intermediate forms occur. They may be known as var. *elaeocarpi*.

At higher elevations and on another tree, which in the absence of my notes I cannot at present name, the insect becomes entirely or almost entirely red and is clothed all over with golden squamosity in fresh examples. The antennae are usually red on the basal joints only, or may be piceous throughout. The squamous clothing of the elytra is sometimes grey. This form may be known as var. *chryseis*.

Hab. Oahu; very abundant in the mountains round Honolulu, and widely distributed.

Proterhinus oscillans Sharp.

P. oscillans Sharp, huj. op. II., p. 210.

This species is not very variable and is rather easily recognized, though very closely allied to *P. deceptor*, *P. subdeceptor* and others. It is generally distributed over Oahu in both ranges and is attached to *Acacia koa.*

Proterhinus pachycnemis Perk.

P. pachycnemis Perk., huj. op. II., p. 211.

The female of this species, which was not contained in my earlier collections, resembles the male in general appearance, but lacks the enormous development of the femora. It may, however, be easily recognized by the long second joint of the antennae, which is as long as or longer than, the third and is much stouter than the latter.

Proterhinus deceptor Perk.

P. deceptor Perk., huj. op. II., p. 245.

This species is common in the Koolau range of Oahu, near Honolulu and elsewhere and, no doubt, in my earlier collections I referred examples of other species to it. It affects the lower altitudes in the mountains and is abundant on the Hau tree (*Hibiscus tiliaceus*). I have now examined many examples and the variation does not seem to be excessive.

HAB. Oahu; common and generally distributed.

(12) *Proterhinus subdeceptor*, sp. nov.

This species is almost similar to *P. deceptor*, but having examined a very fine series, I find that it is evidently more elongate; the elytral clothing has not the same tendency to form spots and the erect setae are less developed, less numerous, and almost confined to the posterior parts of the elytra.

The colour of the elytra is usually red or reddish, with black or fuscous marking each side, often forming a median band. In small dark specimens nearly the whole of the elytra is occupied by this black colour except the basal third. The pronotum is very densely clothed at the sides with appressed pale squamosity, and very rarely it is almost equally dense between these areas. Usually a number of the basal joints of the antennae are clear red, but sometimes only the scape is of this colour, while in others the antennae are entirely black.

HAB. Oahu; widely distributed in the Koolau range. I have taken it commonly from stems of *Alyxia*.

(13) *Proterhinus pipturi*, sp. nov.

Rufescens vel sordide rufus, elytrorum marginibus et saepe maculis dorsalibus nonnullis nigricantibus aut fuscis, pedibus rufis, nonnunquam sordidioribus, antennis clare rufis, apices versus nigris. Pronotum aureo-squamosum, lateraliter plaga densiore utrinque vestitum. Oculi minores; antennae graciles, fortius elongatae, articulo primo robusto et elongato, tertio gracili, elongato, quam quartus multo longiore, clava distincte 3-articulata. Articulus tarsorum anticorum lobatus sat magnus. Elytra plerumque maculatim squamosa, setisque erectis albidis subconspicue vestita, angulis humeralibus haud productis. Long. 1·75—2·25 mm.

This small species is best distinguished by the more than usually elongate antennae, with clear red basal joints. The elytra in fresh examples bear more or less distinct roundish spots of pale squamosity and in most individuals, especially of the male sex are rather wider towards the base than in most species. These characters and the rufescent colouring render this species rather easy to distinguish.

HAB. Oahu; mountains near Honolulu 1200—1800 ft. Attached to *Pipturus*.

Proterhinus vicinus Perk.

P. vicinus Perk., huj. op. II., p. 212.

I have examined many additional specimens of this small species. It varies in colour, in the shape of the prothorax and in the length of the antennae, while very rarely these are entirely black. The series now before me were all taken in the same locality and at the same time. Whether the species is really distinct from some of the allied species on Kauai is at present uncertain owing to the great variability.

Proterhinus pusillus Sharp.

P. pusillus Sharp, huj. op. II., p. 212.

I have considered a long series of specimens, collected from all parts of Oahu, to be the above species. The variation is considerable; the legs may be entirely black or entirely red, or red in parts. The antennae are often wholly black or dark-coloured, or they may be black, with the base red. The beetle itself varies in colour from black to reddish. The pronotum has always a dense patch of squamosity along the sides, and is much wider in some examples than others, as is also the case with the elytra.

P. pusillus var. *subpusillus* var. nov.

This form may be a distinct species; it is usually narrower than the typical form, the elytra are generally for the most part dull red, and the dense patches of squamosity at the sides of the pronotum are dilated or curved inwards at about the anterior third of its length and may even meet there. This variety is common in the Waianae range.

HAB. Oahu; in all localities from 1500 ft. upwards. Attached principally, if not solely, to *Pelea*.

(14) *Proterhinus minimus*, sp. nov.

Rufescens, elytris utrinque saepius nigro- vel fusco-notatis, antennis apices versus nigricantibus, elytris setis erectis gracilibus parce vestitis. Antennae crassiusculae, clava 3-articulata. Pronotum antice impressum, lateribus plaga densiore squamosa ornatis. Elytra parce squamosa, angulis humeralibus distinctis, sed haud acute productis. Long. 1·5—2 mm.

One of the smallest species of the genus, best recognized by the red colour, small eyes and tarsal lobes, the sparse and rather fine erect setae of the elytra, the dense patch of squamosity on either side of the pronotum, and the form of the antennae. The scape in the male is large for the size of the insect and the funicle joints are thicker than usual, giving the antennae a rather stout appearance. Two abraded specimens with entirely red antennae may also belong to this species.

Hab. Oahu; mountains near Honolulu; probably rare.

Proterhinus blackburni Sharp.

P. blackburni Sharp, huj. op. II., p. 246.

Common throughout both ranges of Oahu on many kinds of forest trees as well as ferns.

Proterhinus archaeus Perk.

P. archaeus Perk., huj. op. II., p. 209.

In both mountain ranges of Oahu; common in the Koolau range near Honolulu and elsewhere. Often under bark of *Straussia* with *P. subplanatus*, but also on *Pelea* and other trees.

STREPSIPTERA.

By R. C. L. Perkins.

H. S. Barber,
U. S. National Museum,
Washington, D. C.

(1) *Elenchus melanias*, sp. nov.

Thorax dull brown or pitchy, head black or nearly so, abdomen black, tips of the joints of anterior tarsi pallid. Lateral branch of antennae extending nearly to their tip, second joint subglobose or subquadrate in different aspects, paler generally than the following. Wings very dark smoky black, apical dilatation of elytra deep black. Abdominal segments with interrupted white apical margins. Genital segment more or less pale within, rather broad where the sides are well angulated in front of the middle, chitinous recurved hook dilated apically and terminated in a very minute pale upturned spine. Expanse 3·3 mm.; length 1·5 mm. Male.

Elenchus melanias var. *silvestris* var. nov.

Very like the above, but with the wings less deeply smoke-coloured, and the genital segment more elongate in proportion to its width. This variety also appears to be slightly smaller than the type.

Hab. Oahu, Hawaii, and females on all the other islands. The typical form described has been taken in more open country and the var. *silvestris* in very dense, wet forests. It infests Delphacid leaf-hoppers of many species and of different genera. The var. *silvestris* approaches most nearly to *E. tenuicornis*, but the difference between Hawaiian specimens and the examples I refer to the latter from Europe, America, Fiji and Australia is much greater than any distinction between the individuals of *E. tenuicornis* from the above named, widely separated regions.

THYSANOPTERA.

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By Richard S. Bagnall, F.L.S., F.E.S.

Contents: 1, General Remarks; 2, Systematic Account.

1. *General Remarks.*

The insects of the order Thysanoptera are perhaps less studied than those of any other well-defined group. This is partly accounted for, perhaps, by the fact that they require special collecting and preserving, and partly also by the minute size of most thrips. Whilst the Thysanopteron is difficult to understand morphologically and certain parts are yet but incompletely understood, it is recognized, and has for some time been recognized, as an insect of decided economic importance, and in view of this it is indeed strange that the order should have been so long neglected by entomologists. The pioneer work of Haliday, Heeger, Jordan, Uzel, Reuter, Trybom, Hinds, is bearing fruit, however, and to-day many entomologists (though fewer than we would wish) are energetically working at the Thysanoptera[1].

It is only recently that the forms outside of the Palaearctic and Nearctic regions have received attention, but from material we have examined from India, the Malay Archipelago, Africa, Central America, etc., it is evident that the Thysanopterous fauna of the tropical and sub-tropical regions will prove to be a very rich one. And it is only natural to suppose that wherever a district is botanically rich, it will also be wealthy in these insects, the majority of which infest flowers and leaves of different plants.

They should be searched for on and under the leaves and stalks of all grasses, ferns, flowering plants, shrubs and trees; in flowers, on lichens, amongst moss, etc., and under bark of decaying trees; a few forms are found in galls and others live in fungoid growths. Most thrips live gregariously and all stages are frequently found together.

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[1] Trybom (Sweden); Karny and Schmutz (Austria); Buffa (Italy); Crawford, Franklin, Hood and Moulton (U.S.A.).

If carded these insects dry and curl up very quickly and are of but little use for study, it is therefore necessary to collect them by means of a small camels' hair brush into a weak solution of formalin, or in from 60 to 70 °/₀ alcohol. The majority of flower-living thrips are very small—not infrequently less than a millimetre in length—and therefore require careful search. The best plan is to shake plants, leaves, flowers, etc., or the contents of one's sweep-net, on to a sheet of white paper, where the most minute insect can be readily seen as soon as it moves.

As might have been expected, excepting for the description of two species given in a recent short paper by the late Mr Kirkaldy, the Thysanoptera of the Hawaiian Islands are unknown. The material upon which the present contribution is based has all been collected by Dr R. C. L. Perkins, and consists chiefly of about seven dozen dried and mounted specimens, though later a small collection in alcohol was submitted; and because of the difficulty of satisfactorily dealing with dried material this latter collection, though small, has been very helpful indeed[1].

Altogether twenty-one species are recorded; fifteen of these are new; two are those described by Kirkaldy, whilst the other four are well-known pests and two of them almost cosmopolitan in their distribution. This is probably only a small proportion of the Hawaiian Thysanoptera; it is quite possible that energetic and systematic search, giving particular attention to the minute forms attached to the various plants, will bring to light five or six times this number.

Further and considerable material would be very useful and welcome; not only will new forms be discovered but we shall be able more fully and perfectly to describe some of those species which through lack of material have herein been erected on single and, in more than one case, imperfect specimens.

It is evident that the Thysanopterous fauna of the Sandwich Isles is by no means poor. In his Presidential Address for 1906, to the Hawaiian Entomological Society, taking as his subject the "Insects at Kilauea, Hawaii[2]," Dr Perkins in speaking of the Thysanoptera says that, as everywhere in the islands, they are very abundant and the species are probably numerous.

Distribution. A study of the distribution of these insects in the islands forming the Hawaiian group cannot but be interesting. The chief feature lies in the number of species that are peculiar each to a certain island, a feature already strongly shown in other groups of more familiar insects and which, though shown perhaps in an exaggerated form here owing to want of material, will we think be substantiated to a large extent when the Thysanopterous fauna is better known. Under the name of each island we give a list of the known thrips, drawing attention to the precinctive forms, and following this up by a table showing the distribution, and by general remarks on the distribution.

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[1] We are indebted to Mr Dudley Moulton for the records of *Heliothrips rubrocinctus* and *Scolothrips 6-maculatus*.

[2] Proc. Hawaiian Ent. Soc., vol. I. pt. 3, p. 89.

KAUAI. It will be seen from the following list that no species herein recorded are peculiar to Kauai; all of these occur also on Hawaii, and the three last-named are apparently introduced forms.

Dermothrips hawaiiensis (forma *aptera*), *Heliothrips haemorrhoidalis*, *Thrips multispinus* and *Limothrips cerealium*.

OAHU. The following species are recorded from the Island of Oahu; the macropterous form of *Dermothrips hawaiiensis*, *Oedemothrips laticeps*, *Nesothrips oahuensis*, *Dolerothrips bicolor*, *Trichothrips nigricans*, *Agnostochthona alienigra*, *Diceratothrips brevicornis*, *Heliothrips rubrocinctus* and *Scolothrips* 6-*maculatus*.

A total of nine species, of which *Oedemothrips laticeps*, *Nesothrips oahuensis*, *Dolerothrips bicolor*, *Trichothrips nigricans*, *Agnostochthona alienigra*, *Diceratothrips brevicornis*, *Heliothrips rubrocinctus* and *Scolothrips* 6-*maculatus* are peculiar to the island. Of these *Heliothrips rubrocinctus* and *S.* 6-*maculatus* are introduced species, *Diceratothrips brevicornis* is most probably not indigenous, and the type specimens of *Dolerothrips bicolor*, *Trichothrips nigricans* and *Diceratothrips brevicornis* are unique.

MOLOKAI. *Dolerothrips angusticeps*, *D. lanaiensis*, *D. dubius* and *Thrips multispinus* are all we are able to record from Molokai. The first-named is peculiar to that island.

LANAI. *Dolerothrips perkinsi*, *D. dubius* and *D. lanaiensis* are the only forms received from Lanai; *D. perkinsi* is unique and therefore peculiar to the island, whilst *lanaiensis* is apparently a common form on Lanai but occurs more sparingly on Hawaii and Molokai also. *D. dubius* also occurs on Hawaii and Molokai.

MAUI. This Island possesses four species: *Dermothrips hawaiiensis* (forma *aptera*), *Dolerothrips flavipes*, *D. ovatus* and *D. intermedius*. All excepting *Dermothrips* are peculiar to Maui; *Dolerothrips flavipes* and *D. ovatus* are well-marked species and apparently common in the island; the type specimen of *D. intermedius* is unique.

HAWAII. *Dermothrips hawaiiensis* (forma *aptera*), *Dolerothrips barbatus*, *D. lanaiensis*, *D. dubius*, *Trichothrips laticornis*, *Anthothrips usitatus*, *Heliothrips haemorrhoidalis*, *Thrips multispinus* and *Limothrips cerealium* are recorded from this island.

Dolerothrips barbatus, *Trichothrips laticornis* and *Anthothrips usitatus* are peculiar to the island and the type specimens of the first two are unique.

Heliothrips haemorrhoidalis and *Limothrips* are pests of wide distribution, whilst *Anthothrips usitatus* and *Thrips multispinus* are probably, almost certainly, not endemic forms though their introduction may date a long time back.

Table showing the species and their distribution in the islands:

Name of Species	Kauai	Oahu	Molokai	Lanai	Maui	Hawaii
TUBULIFERA						
**Dermothrips hawaiiensis*, forma *aptera* ...	+	—	—	—	+	+
* ,, ,, ,, macroptera	—	+	—	—	—	—
*Oedemothrips laticeps	—	+	—	—	—	—
*Nesothrips oahuensis	—	+	—	—	—	—
*Dolerothrips barbatus (m)	—	—	—	—	—	+
* ,, flavipes	—	—	—	—	+	—
* ,, ovatus	—	—	—	—	+	—
* ,, perkinsi (m)	—	—	—	+	—	—
* ,, angusticeps	—	—	+	—	—	—
* ,, bicolor (m)	—	+	—	—	—	—
* ,, intermedius (m) ...	—	—	—	—	+	—
* ,, *lanaiensis*	—	—	+	+	—	+
* ,, *dubius*	—	—	+	+	—	+
*Trichothrips laticornis (m)		—	—	—	—	+
* ,, nigricans (m)	—	+	—	—	—	—
*Agnostochthona alienigra	—	+		—	—	—
Anthothrips usitatus	—	·	—	—	—	+
Diceratothrips brevicornis (m) ...	—	+	—	—	—	—
TEREBRANTIA						
†*Heliothrips haemorrhoidalis*	+		—	—	—	+
† ,, rubrocinctus	—	+	—	—	—	—
Thrips multispinus	+	—	+	—	—	+
*Scolothrips 6-maculatus	—	+	—		—	—
†*Limothrips cerealium*	+	—	—	—	—	

In the above table those marked with an asterisk may be regarded as endemic, whilst a † indicates species of economic importance that have almost certainly been introduced.

The genera *Dermothrips*, *Oedemothrips*, *Nesothrips*, *Dolerothrips* and *Agnostochthona* are peculiar to the Hawaiian Islands; of these *Dermothrips* and *Oedemothrips* are striking forms bearing no very close relationship with any allied genera; *Dolerothrips* very closely approaches *Trichothrips* and its allies. We do not know *Nesothrips* and *Agnostochthona* except from Kirkaldy's description, from which *Agnostochthona* would appear to be an *Anthothrips*, and *Nesothrips* would appear to come near *Oedemothrips*; the species of the genera *Trichothrips*, *Anthothrips* and *Thrips* are world-wide in their distribution.

A large proportion of species are each peculiar to one particular island; such are denoted in the table by their names appearing in black type instead of in italics. Now, probably owing to the comparative paucity of material, we have had to describe a number of unique types (these being denoted by an "m" in parenthesis), but even taking these into consideration we find several outstanding features worthy of note, though we are not yet in a position to make generalisations with any degree of certainty. The first and perhaps most striking feature is in the distribution of *Dermothrips*. The wingless form is found more or less commonly in three islands, including the two most widely separated islands, Kauai and Hawaii, whilst the winged form is found in a fourth island, Oahu. No winged examples have been taken in any one of the islands where the wingless form occurs, whilst the winged form which is larger and more robust than the wingless form, is peculiar to Oahu, where the wingless form is unknown. We might, in fact, regard this macropterous form as a distinct local race.

The preponderating genus is *Dolerothrips*, and of the nine described species seven are confined each to a single island, whilst *lanaiensis* is, one might almost say, peculiar to Lanai, as the specimens recorded from Molokai and Hawaii are referred to that species with some little doubt. *D. dubius* occurs in the same islands as *lanaiensis*.

Neither *Dolerothrips* nor any of its allied genera is represented in Kauai, in fact *Dermothrips* is the only Tubuliferon we are able to record from that island; but three Terebrantians (in two cases, if not all, introduced) occur, these same species being found again in Hawaii.

So far we can only regard *Heliothrips haemorrhoidalis*, *H. rubrocinctus* and *Limothrips cerealium*, and more doubtfully *Anthothrips usitatus*, *Scolothrips 6-maculatus* and *Thrips multispinus*, as important from an economic point of view.

It is unfortunately certain, however, that more of these little pests exist, and unknown and unseen are causing damage in a greater or less degree upon the various valuable crops that are being cultivated in the Hawaiian Islands.

As an illustration of the decided economic importance of the Terebrantian Thysanoptera we might instance the Pear thrips, *Euthrips pyri* Dan. In 1895 this species appeared in such great numbers as to cause extensive damage to hundreds of acres of orchards in California, and ever since then it has occupied the attention of several American economic entomologists. Only last year we recorded its appearance in Great Britain[1], and within a year of its appearance we learn that much damage has been done to many pear and plum orchards in the south of England. Like most, if not all Thysanoptera, *E. pyri* is parthenogenetic, and in the countless thousands of Californian specimens examined not a single example of the male has been discovered;

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[1] Bagnall, Journal of Economic Biology, IV. pt. 2.

amongst those found in England, however, we have detected a solitary example of that sex.

Vestigial Wings, etc. A distinct feature in the Hawaiian Thysanoptera is the exceptionally large proportion of apterous species or species wherein the wings have been reduced to a functionless pad. In the truly wingless species we find that the ocelli are absent, whereas in the brachypterous forms the ocelli are seldom if ever entirely lost. In some species of *Dolerothrips* the wings are reduced to such an extent that it is only by careful microscopical examination that the minute bristle-set scale-like pad can be distinguished, but in all species the ocelli are well-developed, larger than is usual in brachypterous forms.

Dermothrips is purely an apterous form on the islands Kauai, Maui and Hawaii, but, as mentioned before, a large winged form is peculiar to a fourth island, Oahu.

Unfortunately the material is not sufficient to warrant one in theorising on these interesting questions.

Taxonomy. Perhaps one of the greatest drawbacks in the study of the Thysanoptera is the want of definition in specific and generic characters. After the main divisions, which are comparatively well-marked, it has as yet been impossible to lay down any plan by which the genera may be readily and naturally divided on workable characters such as exist in, we think, all other orders. For instance in the Coleoptera we have well-marked and invaluable means of systematic grouping in such parts as mouth organs, the feet, the sternum, the abdomen, the genitalia, etc., whilst in other orders these and other parts such as wing-venation, antennal characters, etc., are equally important. Nor do the species of this order possess structural characters such as those so beautifully exemplified in that group of primitive soft-bodied wingless insects, the Collembola or Springtails, wherein we find the structure of the spring and foot, the eye-spots, etc., a very valuable aid to identification.

In fact we find several features, important in most orders, of little taxonomical importance in the Thysanoptera excepting perhaps in diagnosing the subordinal divisions. These remarks apply particularly to the sub-order Tubulifera, which so far as the Hawaiian fauna is concerned affect us more closely than the Terebrantia.

In the Terebrantia certain characters have been used in the separating of the two families *Aeolothripidae* and *Thripidae*, such as the form and segmentation of the antennae and the form of ovipositor in the female, but recent researches have brought to light several forms possessing antagonistic characters which have somewhat weakened their value. Nevertheless, compared to the Tubulifera, the insects of the sub-order Terebrantia are not so difficult to group systematically.

The satisfactory generic grouping of the species of the sub-order Tubulifera is one of much difficulty. The parts, as we have said already, that in many orders exhibit invaluable characters for the satisfactory and natural grouping of the species, are in this sub-order chiefly remarkable by their similarity and want of definition. Thus the sternum, the mouth parts, the feet, the antennae and the wings can only play a comparatively unimportant part in the systematic arrangement of these insects. It is true that there are certain well-defined genera or groups of genera, such as *Megalothrips* Targ.-Tozz., and allies, wherein the sixth abdominal segment is laterally produced in the male; *Macrothrips* Bagnall and *Ecacanthothrips* Bagnall wherein the fore-coxae are curiously produced; *Dinothrips* Bagnall, remarkable for the bifurcate lateral mesothoracic appendages in the male; *Polyommatothrips* Buffa possessing the eyes large and contiguous or apparently so, and *Ecacanthothrips* and *Eupathithrips* Bagnall each having a distinctive and peculiar type of antennal sense-organ; but the fact remains that as a whole the sub-order is a difficult one to understand and classify.

Again we find instances of two groups of species which may be separated easily by the naked eye or under a comparatively low-power lens, but though one can have little doubt as to the distinctness of the two so-formed genera, yet the differences are exceedingly difficult to convey in words. Such is the case in the genera *Idolothrips* and *Dicaiothrips* Buffa. We have had a number of species of both genera through our hands from Central America, the Malay Archipelago and Africa, and whilst satisfied as to the value of the genera, we have found it very difficult to formulate the common characteristics of each genus.

As to specific characters, the relative length of the head and prothorax, and of the tube compared to its breadth at base and to the length of head and sometimes to the length of preceding segments, are apparently good characters in most genera. In our table of the genus *Dicaiothrips* in a recent paper on Neotropical Tubulifera[1] we found these characters invaluable; and the relative lengths of the seventh and eighth abdominal segments were also helpful.

We are, in a manner of speaking, in the early stages of this study, and it is therefore essential that all authors should describe and figure each species fully, and in addition briefly compare them with their allies.

Chaetotaxy. The number, form and arrangement of bristles on the head, prothorax and abdomen will prove to be characters of some taxonomical importance in the Tubulifera as well as in the Terebrantia, and it is well to draw attention to the chaetotaxy.

As an illustration we find in the genus *Dicaiothrips* already referred to that the post-ocular bristles are always present in the female but usually though not always absent in the male; thus we have found a useful character in our table of the Neotropical *Dicaiothrips*.

In the material now before us we may draw attention to certain features relative to the subject. *Dermothrips* (with one other known Phloeothripid genus) is peculiar on account of the usual bristles being obsolete, thus approaching the condition seen in the *Urothripidae*; whilst *Dolerothrips* possesses a character common to all the species in the fore-coxa, which, instead of being furnished with one prominent bristle is very strongly spinose. In all the species of this latter genus too, we notice that the mid-lateral, posterior-marginal pairs of bristles and the pair at posterior angles of prothorax are more or less well developed, whilst the anterior-marginal and pairs at anterior angles are either poorly developed or obsolete.

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[1] Bagnall, Journal Linn. Soc., Zoology, XXX. pp. 369—387, pl. 51—53, 1910.

In tabulating the species of *Dolerothrips* we have found characters connected with the bristles of decided importance; thus in *D. perkinsi* the lateral bristles of the eighth abdominal segment have been considerably reduced, in *D. intermedius* all the bristles are much shorter than in other species, excepting the extreme and interesting form *lanaiensis* wherein all the bristles are very weak and greatly reduced, approaching the condition seen in *Dermothrips*.

2. *Systematic Account.*

Order THYSANOPTERA.

Insects of the order Thysanoptera possess certain features which at once separate them from all orders; principally the semi-mandibulate and semi-suctorial mouth; the fringed wings and the bi-articulated foot, which latter is furnished with a retractile bladder-like organ, a characteristic embodied in the ordinal name Physapoda, a name adopted by many entomologists.

It is beyond the scope of the present contribution to go into the details of the anatomy, nor is it necessary when one can consult the excellent works of Haliday, Jordan, Uzel and Hinds[1]. But recently we have had the pleasure of describing a new type of Thysanoptera, *Urothrips paradoxus* Bagnall, differing in so many points from all other forms as to modify considerably our ideas as to the relationships and phylogeny of the thrips, and also their systematic arrangement; therefore, whilst adopting Haliday's very convenient classification herein, we cannot pass unnoticed an insect that will without doubt be an important factor in the future classification of the order[2].

Urothrips, whilst undoubtedly Tubuliferan in its affinities, differs from all known forms in both divisions of the Thysanoptera by the possession of single-jointed maxillary and labial palpi; of eleven pairs of well-developed stigmata instead of four pairs;

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[1] Haliday, Entomological Magazine, III. pp. 439—451, 1837, and in Walker's Homopterous Insects, Brit. Mus. pt. IV. pp. 1094—1118, 1852; Hinds, Proc. U.S. Nat. Museum, XXVI. pp. 79—242, 1902; Jordan, Zeitschrift f. wissensch. Zoologie, XLVII. pp. 541—620, 1888; Uzel, Monographie der Ordnung Thysanoptera, 1895.

[2] Bagnall, Annales Musei Nationalis Hungarici, VII. pp. 125—136, pl. iii. 1909.

of whip-like terminal hairs in the male; and by the fact that the posterior pair of coxae instead of the intermediate pair are the most widely separated. The antennae, too, are distinctly typical in the family Urothripidae.

The sub-orders may be tabulated as follows:

I. Female without an ovipositor; last abdominal segment tubular in both sexes. Lower and upper wings, when present, similar in structure, with only one (partially developed and sometimes obsolete) median longitudinal vein which never reaches to tip of wing .... Sub-order **Tubulifera.**

  i. Eleven pairs of stigmata present; hind pair of coxae most widely separated. Antennae broad, seven-jointed. Ninth abdominal segment elongate, longer than preceding; intermediate terminal hairs obsolete. Terminal hairs in male whip-like, in female simple .... Fam. *Urothripidae* Bagnall.

  ii. Four pairs of stigmata present; intermediate pair of coxae most widely separated. Antennae more or less slender, eight-jointed, joints elongate. Ninth abdominal segment transverse, as long as or shorter than the preceding; intermediate terminal hairs present, terminal hairs simple in both sexes[1] .... Fam. *Phloeothripidae* Haliday.

II. Female with a saw-like ovipositor; last abdominal segment of female usually conical; that of male rarely like the female's, but usually bluntly rounded. Fore-wing with at least one longitudinal vein reaching from base to tip of wing .... Sub-order **Terebrantia.**

  i. Antennae nine-segmented. Wings (when present) broad and rounded at the tips; fore-wings with cross veins. Ovipositor of female up-curved. Maxillary palpi geniculate, three- to seven-segmented; labial palpi two-, four- or five-segmented .... Fam. *Aeolothripidae* Haliday.

  ii. Antennae six- to eight-segmented. Wings (when present) usually narrow and pointed at tips, without cross veins. Ovipositor of female down-curved. Maxillary palpi non-geniculate, two- or three-segmented, labial palpi always two-segmented .... Fam. *Thripidae* Haliday.

Only the latter family of each sub-order is represented in the Hawaiian fauna; representatives of the family Aeolothripidae may however be met with when further attention is given to the order.

We should here draw attention to the genus *Heterothrips* Hood, the species of which possess characters common to both families, and also to certain anomalous Indian and African material in our possession.

Sub-order *TUBULIFERA* Haliday.

Fam. PHLOEOTHRIPIDAE Haliday.

DERMOTHRIPS, gen. nov.

Surface rough and dull; head, prothorax, fore-coxae and all femora strongly scabrous.

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[1] These characters in the main part apply also to species of the Sub-order Terebrantia.

Head large, longer than broad and nearly twice as long as the prothorax; cheeks parallel, roundly constricted at base. Antennae one and one-half times the length of the head, joints six to eight closely segmented. Mouth-cone rounded at tip, almost as long as the prosternum. Eyes small; ocelli absent in wingless forms, present but very small in winged forms; post-ocular spines absent.

Prothorax small, transverse; pterothorax transverse. Wings, when present, long and slender; fore-wing with a strong median vein the basal half of which is transversely ridged. Fore-coxa without a prominent spine, fore-tarsus unarmed in the female.

Abdomen elongate-ovate, much broader than the pterothorax; all bristles (excepting those at tip of tube) obsolete.

Male one-third smaller than the female, having the abdomen more slender and distinctly linear, the fore-leg stouter and the fore-tarsus armed with a tooth.

Species small.

Type. *Dermothrips hawaiiensis* mihi.

(1) *Dermothrips hawaiiensis*, sp. nov.

Forma *aptera*.

Plate XVII. figs. 1—5.

♀. Length 2·0 mm., breadth of mesothorax 0·43 mm.

Colour uniform dull black, tarsi tinged with brown.

Head one and one-third times as long as broad and not quite twice as long as the prothorax; cheeks sub-parallel and rounded near base; vertex slightly raised between eyes. Eyes coarsely faceted, small, occupying laterally a little more than one-fifth the total length of the head; yellowish-brown in the dried specimens. Ocelli and post-ocular spines absent. Width between the eyes a little more than two and one-half times the width of an eye. Antennae one and one-half times the length of the head, separated at their bases and inserted on a raised prominence; second joint distally truncate, third to fifth clavate and sixth to eighth closely segmented; third joint one and one-half times the length of second; fourth, four-fifths of third; fifth, seven-eighths of fourth; sixth equal in length to the fifth, constricted at base and truncate at apex; seventh less than half the length of the sixth, and apical joint three-quarters the length of the seventh, the three apical joints together narrowing from about middle to tip. Sense-cones long and slender, a pair on each of the joints three to five, but apparently only one on the sixth joint, which is on the inner side of tip. In some specimens there appears also to be a long, slender sense-cone on the seventh joint at the tip within. Mouth-cone rounded at tip, three-quarters as long as wide at base and not quite reaching across the prosternum; labrum pointed. Surface of head scabrous, the irregular ridges most conspicuous laterally and taking the form of numerous small tubercles, each set with a weak and minute seta.

Prothorax transverse, only one-half as long as broad; setae obsolete excepting the posterior-marginal pair which are short and weak. Surface roughly sculptured with the disc irregularly depressed. Pterothorax as wide as the width across fore-coxae, about three-quarters as long as broad; fore-part of mesothorax scabrous, dorsal surface squamose and metathorax reticulated. Legs somewhat short, all femora slightly swollen; fore- and intermediate-coxae strongly projecting, fore-coxa scabrous, without any prominent bristle, and fore-tarsus unarmed. Sculpture of all femora the same as that of the head, all tibiae less markedly scabrous and more strongly and regularly setose.

Abdomen oblong-ovate, one and two-thirds as broad as the pterothorax, widening from base to the fourth segment and narrowing from the sixth segment to base of tube. Surface shagreened, very sparsely, irregularly and minutely setose; the second segment, a good part of the third and the sides of the succeeding segments having a squamose appearance as in the pterothorax. Tube about two-thirds the length of the head and about two and one-half times as long as broad at base, narrowing from apical third to tip, where it is only one-half as broad as at base. Surface of tube smoother and more shining than the rest of the abdomen, and showing signs of reticulate sculpture. Terminal hairs a little more than one-half the length of the tube; all abdominal hairs very weak and minute.

♂. Length 1·5 mm. There is a single specimen of what is apparently the male of *Dermothrips hawaiiensis*. It is only about three-quarters the average length of the female, and is much narrower in comparison to the length, having the abdomen linear and only about one and one-quarter times as broad as the pterothorax. The fore-leg is stouter, and the tarsus is armed with a short tooth. The tube is comparatively longer and narrower.

Forma *macroptera*.

♀. Length 2·1 to 2·5 mm. The winged form is on an average distinctly larger than the wingless specimens. The pterothorax is developed, whilst the abdomen is furnished with wing-retaining spines. The eyes are comparatively larger; the ocelli are present though very small, the posterior pair being on a line drawn through the posterior third of eyes, and near to their inner margins. The wings are long and narrow, reaching the ninth abdominal segment. They are of a smoky colour with a dark vein running for more than one-half the length, this vein being ridged for a little more than half its length from the base. In the specimens examined, all of which come from the island of Oahu, the wings lie so closely to the abdomen and seem so slender in comparison to the heavy body, as to suggest long disuse.

Hab. Kauai, Oahu, Maui, Hawaii.

Forma *aptera*, ♀. Hawaii, Kona, one specimen at 3000 feet and two others at 2000 feet, September 1892 (Perkins, Nos. 203 and 206); Kilauea, two, July 1895 (No. 531), two, August 1895 (Nos. 532 and 603), one, August 1896 (No. 656), and three at 4000 feet, September 1896 (No. 695). Kauai, Mounts. Waimea, six specimens at 4000 feet, June 1894 (No. 285). Koholuamano, one specimen, April 1895 (No. 523) and Makaweli, one at 2500 feet, February 1897. Maui, Haleakala, three specimens, over 5000 feet, October 1896 (No. 636). ♂. Kauai, one specimen at 4000 feet, October 1895 (No. 560).

Forma *macroptera*, ♀. Oahu, Waianae Mountains, one specimen at 2000 feet, April 1892 (No. 14); Mountains near Honolulu, two at 2300 feet, July 1900 (Nos. 667 and 786) and another specimen, back of Tantalus (mt.), November 1900 (No. 784).

OEDEMOTHRIPS, gen. nov.

Surface highly polished and shining.

Head scarcely as long as broad, slightly widened anteriorly. Antennae twice as long as the head. Mouth-cone broadly rounded, reaching about three-quarters way across the prosternum. Eyes small, ventrally produced posteriorly; space between them great. Ocelli absent; post-ocular spines long.

Wings absent. Legs moderately long and strong, fore-femur in the female very slightly longer than the tibia, and fore-tarsus unarmed (excepting the minute distal tooth).

Abdomen broad, lateral and sub-lateral bristles long and slender.

Male with the prothorax and fore-femora much enlarged and inflated, fore-tibia about two-thirds the length of the femur, and tarsus armed with a strong tooth.

Species small.

Type. *Oedemothrips laticeps* mihi.

(1) *Oedemothrips laticeps*, sp. nov.

Plate XVII. figs. 6—10.

♀. Length 1·5 mm., breadth of mesothorax 0·375 mm.

Colour shining black, polished; fore-tibia red and tarsi brownish, antennae with the second and third joints brownish, the third being yellow at base. Surface polished, especially the prothorax, head and femora.

The head is about as long as broad, widest across eyes; frons raised and rounded, and the cheeks, which are furnished with two or three minute setae, narrowed slightly from behind the eyes to base. Eyes small and moderately finely faceted, occupying laterally about one-quarter the length of the head, the space between them being about three times the width of an eye. Surface highly polished and shining, and faintly and finely reticulated near neck. Ocelli absent; post-ocular bristles very long, and a pair of shorter bristles between eyes. Mouth-cone broadly rounded and reaching for about three-quarters the length of the prosternum. Antennae more than twice as long as the head, separated at base; second joint constricted at base, cyathiform; joints three to five claviform and practically sub-equal in length; sixth joint only slightly narrowed to base, about four-fifths the length of fifth; seventh narrowing to tip, about two-thirds the length of the preceding; apical joint as broad as tip of the penultimate joint and narrowed to apex. Antennal hairs very long and slender; sense-cones very difficult to distinguish in dried specimens, apparently rather long and acute, and one pair on each of the joints three to six.

Prothorax flat, about one and one-half times as broad as long; mid-lateral, anterior-marginal and spines at anterior angles minute, those at posterior angles apparently longer and stronger, and the posterior-marginal pair exceptionally long. Legs comparatively long, fore-femur as long as the head and slightly incrassate; fore-tibia almost as long as the femur, and fore-tarsus armed with a minute distal tooth. Hind and intermediate legs moderately stout. Pterothorax strongly transverse, wings absent.

Abdomen oblong-ovate, occupying nearly two-thirds the length of the whole insect, and nearly twice as long as broad, widening to the fourth segment and thence narrowing to the base of the tube. Tube three-quarters the length of the head and about twice as long as broad at base, evenly narrowed from base to tip. Surface of tube reticulate and the basal half (or thereabouts) of other segments similarly reticulated. Terminal bristles almost as long as the tube; abdominal hairs long, those on segments seven and nine being longer than the tube; all sub-lateral hairs more than usually long.

♂. The male has the prothorax very considerably swollen, almost globiform, and the fore-legs also much enlarged, the femora being very strongly incrassate and swollen. The fore-tarsus is also armed with a long and strong tooth, whilst the abdomen is longer and narrower in comparison to its breadth.

HAB. Oahu, one ♂, Waianae Mountains, 2—3000 feet, February 1896 (Perkins, No. 553); one ♂ and two ♀s, Mountains near Honolulu, 2—3000 feet, July 1900 (Nos. 667 and 789), and one ♂, Konahuanai Ridge, December 1900.

NESOTHRIPS Kirkaldy.

Kirkaldy, Proc. Hawaiian Entomological Society, I. p. 102, 1907.

"Allied somewhat distantly to *Liothrips* Uzel. Flat above, convex below. Strongly chitinized, with a shining, polished surface.

"Head dorsally about as long as the pronotum, a little longer than wide, lateral margins sub-parallel. Antennae about twice as long as head. Ocelli present. Eyes not very prominent laterally. Face long, lateral margins sub-parallel, then narrowing apically. Pronotum anteriorly as wide as the head, posteriorly distinctly wider, warts absent. Flight-organs absent. Anterior legs unarmed, femora incrassate, more than twice as long as the tibiae."

Type. *Nesothrips oahuensis* Kirkaldy.

Nesothrips oahuensis Kirkaldy.

"Polished, shining, pitchy-blackish; apices of anterior tibiae, the tarsi, etc. paler. Face bristles absent. Antennae 5, 5, 9, 8½, 8, 6, 8. Two longish bristles (lateral and sublateral) near the posterior margins of at least five tergites.

"Tube with two terminal bristles.

"Length $1\frac{7}{8}$ mm.

"Hab. Oahu, Mt. Tantalus, 1300 feet (O. H. Swezey), probably on flowers."

The genus *Nesothrips* would seem closely to approach the preceding genus *Oedemothrips*. In the present form however we find that the ocelli are present and face bristles absent. If the specimens described by Kirkaldy are females (presumably so on account of absence of fore-tarsal tooth) then the fore-femur is considerably longer than in *Oedemothrips laticeps*. The antennae are shown as seven-segmented; it is probable, almost certain, that the two apical joints were closely segmented and the suture thus escaped notice. The statement that the tube has only two terminal bristles is evidently erroneous.

DOLEROTHRIPS, gen. nov.

Allied to *Trichothrips* Haliday.

Head longer than broad, cheeks more or less sparsely spinose, eyes moderately small, ocelli present and post-ocular bristles usually long. Mouth-cone short, broadly rounded at apex. Antennae as a rule twice as long as the head. Fore-femur incrassate; fore-tarsus armed with a well-marked tooth and fore-coxa armed with numerous short stout spines. Anterior-marginal prothoracic bristles usually obsolete; others well developed.

Wings generally vestigial.

Abdomen broad; tube shorter than the head; abdominal bristles as a rule well-developed.

Male smaller, with abdomen not so broad.

Prothorax large and heavy and often strongly convex, as long as or longer than the head. Fore-legs very long and strongly incrassate or swollen, with stout tarsal tooth. The median grove on the prothorax is in most cases prominent, whilst the notum does not attain the lateral margins.

Male with scale (?) at base of tube.

Type. *Dolerothrips flavipes* mihi.

The following table, though rough, may be useful in separating the species[1] :—

I. All femora yellow .... *flavipes*, sp. nov.

II. All femora concolorous with body :—

- A. Abdominal bristles well developed :—
  - 1. Size larger (3·5 mm.); cheeks slightly swollen and spinose near posterior third .... *barbatus*, sp. nov.
  - 2. Size smaller (1·6 to 2·5 mm.); cheeks more or less evenly spinose :—
    - (*a*) Abdomen dark brown, tube light reddish-brown, and almost as long as head .... *bicolor*, sp. nov.
    - (*b*) Tube concolorous with rest of body; shorter than head :—
      - i. Tube twice as long as broad at base; lateral bristles on eighth abdominal segment obsolete .... *perkinsi*, sp. nov.
      - ii. Tube three times as long as broad at base; lateral bristles on eighth abdominal segment present :—
        - (*aa*) ♀. Size smaller (1·65 mm.); hind angles of eighth abdominal segment acuminate; head long and narrow, one and one-half times as long as broad and slightly longer than prothorax; prothorax narrower; abdominal bristles weaker .... *angusticeps*, sp. nov.
        - (*bb*) ♂. Size larger (2·0 mm.); eighth abdominal segment simple, head only a little longer than broad and slightly broader than the prothorax; prothorax large and convex; abdominal bristles stronger .... *ovatus*, sp. nov.
- B. Abdominal bristles abbreviated (tube short and very broad) .... *intermedius*, sp. nov.
- C. Abdominal bristles obsolete .... *lanaiensis*, sp. nov.

(1) *Dolerothrips barbatus*, sp. nov.

Plate XVIII. figs. 11—14.

♂. Length 3·5 mm.; breadth of mesothorax 0·6 mm.

Colour dark brown, tarsi, fore-tibiae and joints of hind and intermediate legs yellowish-brown.

Head one and three-quarter times as long as broad across eyes, and just as long as prothorax. Cheeks parallel for half their length behind eyes and then rounded out.

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[1] *D. dubius* and *D.* sp. are not included in this table.

the swollen part being furnished with five or six spines; vertex slightly raised in the form of a hump.

Mouth-cone blunt and reaching only one-third way across the prosternum. Eyes small, occupying laterally more than one-fifth the length of head, moderately finely faceted; post-ocular spines placed far back and about twice as long as the eye. Posterior ocellus overhanging and looking forward, and the posterior pair on a line drawn through centre of eyes. The antennae are unfortunately broken off with the exception of the first four joints, the second and third joints are sub-equal claviform with the distal half practically parallel, and have the stems shaded with a reddish-yellow colour. There is a pair of short and somewhat obtuse sense-cones on each of these joints.

The prothorax is very massive, as long as the head and two-thirds as long as broad. The mid-lateral angles are broadly rounded, whilst the notum does not reach to the lateral margin, being only four-fifths as broad as the total breadth of the prothorax. All the spines are apparently present; the pair at the posterior margins are long, the mid-lateral pair slightly shorter, the posterior-marginal pair shorter again, and the pair at anterior angles shortest of all, and inwardly curved. The anterior-marginal pair are either very minute or obsolete.

The fore-coxa is armed with several short, stout spines. The fore-femur is nearly twice as long as the head and about two and one-quarter times as long as broad through the middle. The fore-tibia is very broad and placed in such a position on the type slide that its true length cannot be estimated, and the figure probably shows this tibia larger than it should be. The fore-tarsus is armed with a very broad, strong tooth.

The pterothorax is not as broad as breadth across fore-coxae, and only two-thirds as long as broad. The wings are vestigial and take the form of a small pad from which spring two bristles. The hind and intermediate legs are rather short and stout, each is furnished with a series of short spines and each tibia with several short and slender ones and a few longer bristles near tips.

The abdomen is slightly broader than breadth across fore-coxae and has the segments one to seven strongly transverse, narrowing from the sixth segment to the tube; the seventh segment is laterally rounded at its basal half. The tube is twice as broad at base as at its apex, longer than any abdominal segment, and five-sevenths the length of head. The terminal bristles are not strong and about three-quarters the length of tube, whilst the abdominal bristles are long but only moderately strong.

♀ unknown.

Hab. Hawaii; Kona, one male from under a rotten log, 4000 feet (Perkins). Dr Perkins makes a note that he saw no other specimen of that species.

(2) *Dolerothrips flavipes*, sp. nov.

Plate XVIII. figs. 15—19.

Length about 3 mm., breadth of mesothorax about 0·475 mm.

Colour of head yellowish-brown, darker at sides and near vertex; prothorax and pterothorax reddish-brown with sides darker, base and sides of the abdominal segments and the tube, excepting near tip, in most specimens blackish-brown; legs clear yellow; antennae with the two basal joints brown, third and fourth yellowish-brown, shaded darker at apical half, fifth and sixth brown but yellow at stems, and the apical joints wholly brown. In dried specimens the thorax and abdomen are blackish-brown with a light patch on the disc of the pterothorax and similar light patches at each side of at least abdominal segments five to eight, and the legs have also a reddish tinge.

Head only a little longer than prothorax and two-thirds as broad at base as long; surface rough; cheeks roundly narrowing behind eyes and converging to base. Eyes somewhat small and finely faceted, occupying laterally less than one-quarter the total length of head; postocular bristles placed at some distance behind the eyes, long and slender. Ocelli large, the anterior one at the extreme apex, which is slightly raised, and the posterior pair near to the inner margins of the eyes and on a line drawn through their centres. Mouth-cone broadly rounded at tip reaching about two-thirds the way across the prosternum. Maxillary palpi rather short and stout. Antennae about one and two-thirds the length of head; basal joints sub-approximate, second about as long as basal one, narrower and constricted near base; joints three to six broadly claviform, third joint one and one-half times as long as the second and twice as long as the breadth near apex; fourth, five-sixths of third; fifth, five-sixths of fourth; sixth, four-fifths of fifth; seventh joint much narrower than the preceding and four-fifths its length, slightly constricted at base; apical joint narrowed to tip.

Sense-cones acute and moderately long, a pair on each of the segments three to six, those on the sixth segment being longer and stouter than the others. Bristles slender, light coloured and inconspicuous.

Prothorax rapidly widened to the mid-line, dorsal surface moderately convex, about three-fifths as wide as long, and the anterior margin slightly emarginate. Bristles at each posterior angle, posterior-marginal and mid-lateral pairs very long and slender, colourless; anterior-marginal pair obsolete, and pair at anterior angles very short. Pterothorax about four-fifths as long as broad, broader than prothorax but not as broad as width across fore-coxae; sides of metathorax only slightly narrowed to base of abdomen.

Wings absent; legs moderately long, fore-coxa armed with several short and stout spines, fore-femur incrassate, fore-tibia stout and the tarsus armed with a strong tooth.

Abdomen much stouter than pterothorax with segments strongly transverse, gradually narrowing from fifth segment to the eighth and from thence roundly narrowed to base of tube. Tube not quite twice as broad at base as tip, and two and one-half times as long as broad at base, about five-sixths the length of head; terminal bristles weak, about two-thirds the length of tube. Abdominal bristles short and weak, those at apex of ninth segment about half the length of tube; a longer and stronger dorsal bristle near each posterior angle of each of the segments two to seven. The dorsal surface is in parts weakly raised in irregular and broken longitudinal ridges.

♂. The male has the prothorax larger and more roundly raised than in the female, the fore-legs much more strongly incrassate; the fore-tibia comparatively shorter and stouter and the fore-tarsus armed with a very strong tooth.

The abdomen is a little narrower and the ventral side of the ninth abdominal segment is armed with a pair of short spines.

Forma *macroptera.*

There is a single carded specimen of the winged form in Dr Perkins' collection. The pterothorax is well-developed and the wings are long, reaching beyond the tip of tube, smoky coloured and darkly shaded towards the end.

HAB. Maui.—Forma *aptera*: several specimens including larvae and pupae in alcohol, no date (Perkins); Haleakala (mountain), numerous specimens from under bark, above 5000 ft., April 1894 (Perkins, No. 116); Forma *macroptera*: one female, Haleakala at 5000 ft., October 1896 (No. 661).

(3) *Dolerothrips ovatus*, sp. nov.

Plate XVIII. figs. 1—6.

♂. Length 1·9 to 2·0 mm., breadth of mesothorax 0·5 mm.

Colour dark chestnut-brown, fore-tibiae reddish-brown and all tarsi lighter with base of sixth, basal third of fifth and fourth, and the greater part of third joint yellowish.

Head not quite seven-eighths as broad behind eyes as long; sides sub-parallel then sharply constricted at base; set with a few small spines; frons slightly raised; surface striated transversely. Eyes moderately small and not very finely faceted, occupying laterally about one-fourth the length of head; post-ocular bristles long and set well back. Ocelli moderate in size, anterior ocellus at apex of raised part and the posterior pair on a line drawn through centre of eyes and not quite touching their inner margins. Mouth-cone about three-quarters as long as broad at base, broadly rounded at the tip and scarcely reaching one-half way across the prosternum.

Antennae twice as long as the head, joints three and four clavate; fifth constricted at basal third, subclavate; sixth constricted near base and with the seventh and eighth submoniliform, the apical joint being abruptly constricted at apex. A pair of sense-cones on each of the joints three to six.

Prothorax convex, very slightly longer than the head and about two-thirds as long as broad, surface smooth; mid-lateral and posterior-marginal spines and pair at posterior angles present, long and practically sub-equal. Pterothorax almost as broad as the width across fore-coxae and only about one-third as long as broad. Wings vestigial. Legs moderately long and stout, posterior coxa large and armed with a number of short, stout spines; fore-femur much swollen, smooth; tibia stout and tarsus armed with a strong tooth.

Abdomen broadly ovate, broadening to the fourth segment and thence roundly narrowing to the base of tube. Basal half of each segment excepting the ninth and tenth roughened with a fine reticulated sculpture. A single pair of very weak wing-retaining spines on each of the segments two to eight, and near the apical margin. Tube a little more than two-thirds the length of head, nearly twice as broad at base as at tip and narrowing evenly to apex. Terminal hairs about three-quarters the length of tube, and bristles at the apex of the ninth segment about the same length. Abdominal bristles long and moderately strong.

♀. The female differs from the male in having a shorter, narrower and flatter prothorax. The fore-femur is only slightly incrassate, the tarsus is armed with a smaller tooth; the fore-coxa is small and is only armed with a few short spines, one of which is distinctly longer than the others, whilst the abdomen is decidedly broader, being one and one-third as broad as the width across the fore-coxae. The tube is five-sixths the length of the head and not so slender as in the male.

Forma *macroptera*.

As in *D. flavipes*; one specimen has the wings stretching beyond tip of tube and the other only to the base of the tube. The wings are faintly iridescent with an obscure sulphur patch near base.

Hab. Maui; Haleakala, one male and two females at 9000 ft., April 11, 1894 (Perkins, No. 124), and two brachypterous and two macropterous females at 5000 ft., September 1896 (No. 661).

(4) *Dolerothrips perkinsi*, sp. nov.

Plate XIX. figs. 17—20.

♀. Length 1·8 mm., breadth of mesothorax 0·43 mm.

Colour very dark brown, almost black; fore-tibiae dark chestnut-brown and all tarsi brownish; antennae dark brown with the basal part of the third joint only yellowish.

Like *D. ovatus* but not so broad; has the head longer and the prothorax comparatively shorter, whilst the antennae, which have the joints three to six distinctly claviform, are only one and two-thirds the length of the head. The abdomen approaches that of *D. lanaiensis* in form, but has the bristles as in *D. ovatus*, though shorter and slightly weaker, those on the eighth segment being very short and weak. The tube is short and stout, being two-thirds the length of the head and only twice as long as broad at base.

D. perkinsi may be recognized from all the allied species by the form and coloration of antennae; from *D. ovatus* by the characters outlined above, and from *D. lanaiensis* by the well-developed bristles.

♂ unknown.

Hab. Lanai, one female, 2000 ft., December 1893 (Perkins, No. 92).

(5) *Dolerothrips angusticeps*, sp. nov.

Plate XVIII. figs. 20—22.

♂. Length 1·65 mm., breadth of mesothorax 0·43 mm.

Colour chestnut-brown, abdomen with reddish-brown sub-lateral patches, fore-tibiae yellowish and all tarsi light brown. Antennae unfortunately broken in the type specimen.

Head linear, long and narrow, one and one-half times as long as broad and a little longer than the prothorax. Fore-coxae with but few spines, one of which is decidedly longer than the others. Prothorax a little more than three-quarters as long as broad, not dorsally convex; mid-lateral bristles and pair at posterior angles very long, posterior-marginal pair shorter and weaker.

Abdomen comparatively broad, segments more distinctly sculptured laterally; hind angles of the eighth segment prominent. Tube long and somewhat narrow, about four-fifths the length of the head and three times as long as broad at base.

♀ unknown.

This species is one of the smallest in the genus, and a very distinct one which may at once be recognized by the long and narrow head, and the form of the eighth abdominal segment. Otherwise it is somewhat similar in form to *D. lanaiensis* from which it may easily be separated by the character of the prothoracic setae and by the presence of well-developed abdominal bristles.

Hab. Molokai; Kalae, one male, August 7th, 1893 (Perkins, No. 172); and Molokai Mts., at 3000 ft., September 8th, 1893 (No. 171).

(6) *Dolerothrips bicolor*, sp. nov.

Plate XIX. figs. 21—22.

♀. Length 2·5 mm., breadth of mesothorax 0·5 mm.

Colour dark brown, head slightly lighter than body and shaded darker laterally and apically. Abdomen deepening towards end to a coal-black; tube light reddish-brown, thus contrasting strongly with the considerably darker coloration of the abdomen;

fore-femora yellowish-brown, lighter apically; all tibiae and tarsi yellowish, hind and intermediate tibiae shaded with brown. Antennae unfortunately broken in the type specimen.

Head with cheeks slightly swollen behind the eyes, one and one-third times the length of prothorax.

Prothorax flat, transverse, nearly twice as broad as long; mid-lateral bristles very long, those at hind angles, and the posterior-marginal pair respectively next in order of length; pair at anterior angles obsolete. Wings vestigial. Fore-legs incrassate; stouter than is usual in the female.

Abdomen almost as in *D. lanaiensis*, but not so broad as in the female of that species, and furnished with rather long bristles somewhat similar to those in *D. angusticeps.*

Tube long and slender, minutely and sparsely setose; almost as long as the head, three and one-half times as long as broad at base, where it is a little more than one and one-half times as broad as at tip.

♂ unknown.

Apart from the form of the head and the long narrow tube, this species may be readily distinguished by the light coloration of the latter segment.

HAB. Oahu; one female, Kaala Mts., over 2000 ft., January 1893 (Perkins, No. 56).

(7) *Dolerothrips intermedius*, sp. nov.

Plate XIX. figs. 7—9.

♂. Length 2·0 mm., breadth of mesothorax 0·45 mm.

Colour dark chestnut-brown, fore-femora lighter, yellowish at apex, and all tibiae yellowish-brown, lightest at knees and with hind and intermediate pairs shaded darker in the middle.

Antennae stout, twice as long as the head, third joint yellowish shaded with brown near apex, basal third of fourth and fifth yellow; joints three to five claviform, sixth narrowing from tip to base and six to eight closely jointed.

Head and prothorax as in *D. ovatus*, the latter irregularly foveolate on each side of disc; post-ocular and prothoracic bristles shorter, mid-lateral pair recurved. Fore-legs somewhat stouter than in *ovatus.*

The abdomen is only very slightly broader than the width across the fore-coxae, narrowing to tube from the third segment. The nature of the chitin appears to be tougher and stronger than in *ovatus*, *lanaiensis* and the other species, excepting *D. barbatus*, and has a duller appearance. Tube stout, three-quarters the length of the head and about twice as long as broad at base and quite twice as broad at base as at the extreme apex. Abdominal bristles moderately short, shorter than in *ovatus*, *perkinsi* or *angusticeps*, between which species and *D. lanaiensis*, *D. intermedius* may be regarded as somewhat intermediate.

♀ unknown.

The single specimen is unfortunately not a good one, and is not figured as satisfactorily as one would wish. It may, however, be recognized with the aid of these figures.

HAB. Maui; one male, Haleakala, 3000 feet, 1900 (Perkins, No. 809).

(8) *Dolerothrips lanaiensis*, sp. nov.

Plate XIX. figs. 10—16.

♂. Length 1·8 to 2·0 mm., breadth of mesothorax 0·4 mm.

General colour as in *D. ovatus*, knees in most specimens with a brownish tinge. Antennae with the base of fifth joint yellow, basal third of fourth, and the greater part of third yellowish-brown; sternum yellowish-brown.

Head as long as prothorax and seven-eighths as broad as long, sides parallel, roundly constricted at base and set with a few minute spines; surface transversely striate. Eyes rather large and moderately finely faceted, occupying laterally a little more than one-quarter the length of head; post-ocular bristles short and slender, set well back. Ocelli small and widely separated, crimson; posterior pair on a line drawn through posterior third of eyes and touching their inner margins. Mouth-cone as long as its breadth at base, and reaching three-quarters way across the prosternum. Antennae slightly more than twice as long as the head; joints three to five clavate, six and seven fusiform and the eighth narrowed from base to a point at tip. A pair of sense-cones on each of the joints three to six.

Prothorax mildly convex about as long as the head, or slightly longer, and a little more than two-thirds as long as broad; mid-lateral spines moderately long, posterior-marginal and pair at posterior angles short and weak. Pterothorax as wide as the prothorax and strongly transverse. Wings vestigial. Legs moderately long and stout, fore-femur strongly crassate, smooth, and fore-tarsus armed with a stout tooth.

Abdomen elongate-ovate, broadest at third segment and narrowing gradually to the seventh segment and thence more strongly to base of tube. Surface very finely sculptured, a narrow band at the posterior margin of each segment smooth; wing-retaining spines as in *D. ovatus* but weaker. Tube about three-quarters the length of head, twice as broad at base as at tip and three times as broad at base as long.

Terminal hairs about three-quarters the length of tube, weak; abdominal bristles obsolete.

♀. The female is slightly larger and decidedly broader, and has the fore-legs as in the female *D. ovatus*. The mouth-cone reaches across the prosternum, the prothorax being decidedly shorter than in the male; the prothorax is also flat and the prothoracic bristles, as well as the post-ocular spines are even less strongly developed. The bristles at the apex of the ninth abdominal segment are about one-third the length of tube which latter is two-thirds the length of the head and stouter than in the male.

HAB. Molokai, Lanai, Hawaii.—Lanai, six males and six females, 2000 feet, January 1894 (Perkins, No. 91); one female, 2000 feet, December 1893 (No. 92), and one female above Waipaa about 3000 feet, February 1894 (No. 102).—Hawaii, one male, Kona, 3000 feet, September 1892.—Molokai, Kalae, one male and one female, August 7th, 1893 (No. 172) and one female, Molokai Mountains, August 29th, 1893.

(9) *Dolerothrips dubius*, sp. nov.

Plate XIX. figs. 23—27.

Forma *macroptera*.

♀. Length 2·0 mm., breadth of mesothorax 0·48 mm.

D. capito closely approaches *D. ovatus* and may be separated by the form of head (fig. 23) and antennae (fig. 25) and the shorter and more slender fore-legs. The antennae have the stems of each joints 3—5 yellow, the prothorax has a shallow fovea on each side of the mid-line and is irregularly foveolate towards lateral margins, and has more slender bristles than in *ovatus*, the posterior-marginal pair being quite small. The intermediate tibia has a long hair at its distal third on the outside as in *D. ovatus*.

The wings are rather narrow and each fore-wing is tinged wholly with smoky-yellow whilst the hind-wing has the lower half tinged with the same colour for the whole of its length; there are 16 or 17 double hairs in the lower fringe of upper wing near tip. The tube is five-sixths the length of the head and two and one-half times as long as broad at base. The abdominal bristles are not quite so well developed as in *ovatus*.

Forma *aptera*.

Wings vestigial.

It is with reluctance that I give a name to this form—whilst it distinctly differs from any of the species heretofore described it must be acknowledged that we have too slight a knowledge as to the extent of variation in the species, especially as regards the winged forms.

HAB. Hawaii, Lanai, Molokai.

Forma *macroptera*, ♀ Hawaii, one, Kilauea, August 1895 (Perkins, No. 532); one, Kona at 3000 feet, September 1892 (in spirit); Molokai, one, Molokai Mountains at 4500 feet, September 21st, 1893; Lanai, one at 3000 feet (No. 93) and a doubtful specimen at 2000 feet (No. 89). Forma *aptera*, one specimen Molokai, Molokai Mountains, 3000 feet, June 1893 (No. 185).

Dolerothrips, sp.

Like *D. dubius* but having the prothoracic bristles as in the macropterous form of *D. flavipes* (Plate XVIII. fig. 18) and the tube slightly shorter compared to the length of head. Abdominal bristles longer.

This is a winged specimen which would appear to differ from *dubius*, chiefly on account of the long prothoracic bristles, and the presence of a pair of short ones at anterior angles. The chaetotaxy of the prothorax is a character upon which one places great reliance, otherwise it might be possible to class this form with the preceding. The single winged female was taken on the Molokai Mountains at 3000 feet in June 1893 (Perkins, No. 185).

We might here emphasize the difficulty of working out a genus like *Dolerothrips* satisfactorily from dried and carded specimens, and we hope that plenty of well-preserved material in alcohol will be placed at our disposal later.

TRICHOTHRIPS Haliday.

There are two Hawaiian forms which may be tabulated as follows :—

i. Colour chestnut-brown; posterior ocelli remote from inner margins of eyes; tube about four-fifths the length of head and three times as long as broad at base..*laticornis*, sp. nov.

ii. Colour black; posterior ocelli touching inner margins of eyes; tube less than two-thirds the length of head and only twice as long as broad at base.........*nigricans*, sp. nov.

(1) *Trichothrips laticornis*, sp. nov.

Plate XVIII. figs. 6—10.

♀. Length about 2·0 mm., breadth of mesothorax 0·45 mm.

Colour chestnut-brown, coxae, forehead, sides of head, prothorax and pterothorax and the apical third of each abdominal segment two to eight darker; fore-tibiae shaded with yellow, and all tarsi, and basal third and tip of third antennal joint yellowish.

Head as wide behind eyes as long, vertex rounded, slightly raised, and bearing the anterior ocellus on the apex; cheeks slightly swollen behind the eyes and roundly narrowed to base. Eyes finely faceted, occupying laterally about one-quarter the length of the head; pigment black; post-ocular bristles long. Ocelli large and widely separated, posterior pair on a line drawn through the centre of the eyes, and remote from their inner margins. Mouth-cone shorter than wide at base, evenly narrowed to tip, and almost reaching to the posterior margin of the prosternum; labium pointed; labial palpi rather large. Antennae almost twice as long as the head; joints three to six broad; joints three to five roughly and roundly obconical, sixth constricted at base, seventh fusiform and eighth narrowly pyriform. Sense-cones long and acute, a pair on each of the joints three to six.

Prothorax three-quarters the length of the head, and one and three-quarters as broad as long. Prothoracic bristles apparently obsolete; although all seta-pits are present I can only discern bristles at the anterior angles, and these are extremely minute. Pterothorax practically as broad as the width across the fore-coxae and slightly broader than long.

Legs moderately stout, fore-tarsus armed with a sharp tooth; intermediate tibia with a long, slender hair at the apical third (i.e. remote from the apex) without, and the hind tibia with a shorter hair near the apex without. Wings present, reaching to the eighth abdominal segment; of a smoky colour and apparently coriaceous.

Abdomen a little broader than the pterothorax, sides sub-parallel from the second to the sixth segments, seventh segment gradually narrowed apically, and eighth roundly narrowed to hind margin. Tube about four-fifths as long as the head, three times as long as broad at base and furnished with what appears to be a well-marked sense-area at apical fourth. Terminal bristles slender and about three-quarters the length of the tube; those at apex of the ninth segment also slender and about the same length as the terminal bristles. Lateral and sub-lateral abdominal bristles long and slender, those on segments six, seven and eight the longest.

♂ unknown.

HAB. Hawaii; Kona, one female, 3000 feet, September 1892 (in spirit).

(2) *Trichothrips nigricans*, sp. nov.

Plate XVIII. fig. 23.

♀. Length 1·8 mm., width of mesothorax 0·48 mm.

Colour black; all tarsi brownish. Antennae unfortunately broken in the type specimen.

Head and prothorax as in *T. laticornis*; head with eyes slightly broader, the space between them less, and the posterior ocelli touching their inner margins. Surface reticulated finely.

Mid-lateral prothoracic bristles very long, those at posterior angles and posterior-marginal pair shorter; others apparently obsolete. A small shallow fovea on each side of mid-line. Legs rather short; fore-pair incrassate and tarsus armed with a short tooth. Wings reaching to the ninth abdominal segment, coriaceous, black, irregularly tinged with yellowish-brown; cilia black.

Abdomen oblong-ovate, broader than in *T. laticornis*, and more roundly narrowed to base of tube. Tube less than two-thirds the length of the head and only twice as long as broad at base. Abdominal bristles long and slender.

♂ unknown.

Apart from being a unicolourous black, *T. nigricans* may be easily separated from *T. laticornis* by its shorter and broader fore-legs, the broader abdomen, and the short and broad tube.

Hab. Oahu; one female, Kaala Mts., over 2000 feet, January 1893 (Perkins, No. 56).

Agnostochthona Kirkaldy.

Kirkaldy, Proc. Hawaiian Entomological Society, I. p. 102, 1907.

"Belongs to the Tubulifera and differs from *Anthothrips* Uzel by the vertex being very slightly longer than wide anteriorly and slightly though distinctly wider anteriorly than posteriorly; it is longer than the pronotum medianly. Face elongate, angularly rounded at the apex, reaching nearly to the base of the prosternum. First segment of antennae as long as, or longer than, the second, and is much stouter; third and fourth a little wider than the others. Tegmina not constricted medianly. Spine on the fore-tibiae somewhat large in the female."

Type. *Agnostochthona alienigera* Kirkaldy.

(1) *Agnostochthona alienigera* Kirkaldy.

"Sordid yellowish-brown, dark fuscous on head and pronotum and on the 6th—8th antennal segments. Eyes rounded, not protruding. Ocelli widely separated, large, posterior pair contiguous with the internal margin of the eyes, front one almost between first segments of the antennae, which are subcontiguous. Relative lengths (from base) 6, 6, 8, 10, 8, 8, 6, 5; 3rd—6th, basally subpedicellate; hairs moderate. Post-ocular bristles very long, one on each side. Cheeks without bristles. Pronotum roundly emarginate apically, rounded posteriorly, lateral margins distinctly diverging posteriorly, posterolateral angles rounded. Fringe-hairs of wings simple, long. Abdominal bristles sparse, slender, mostly large.

"♀. Tube about one-half longer than the preceding segment. Length about $1\frac{3}{4}$ mm."

There are many genera allied to *Anthothrips*, and, though in all probability the genus *Agnostochthona* is a valid one, the above characters are much too meagre upon which to erect a genus; in fact as the description now stands the type species may be relegated to any one of several genera, not a single character of generic value is emphasized in the diagnosis. From the short specific description it is clear that the species is not represented in the collection made by Dr Perkins. As yet we have not had the opportunity of examining Kirkaldy's types; this will be necessary before its true position can be made clear.

Hab. Oahu; Mt. Tantalus, 1500 feet, collected by Mr F. W. Terry from under the bark of a dead tree, where it occurred in numbers and in all stages.

ANTHOTHRIPS Uzel.

(1) *Anthothrips usitatus,* sp. nov.

Plate XVII. figs. 11—14.

♀. Length 1·9 mm., breadth of mesothorax 0·285 mm.

Colour uniform dark brown, all tarsi yellowish and fore-tibia shaded to yellowish-brown at tip; antennal joints three to five yellow, sixth tinted with brown and the apical and penultimate joints light brown.

Head about one and one-quarter as long as wide through eyes, and one and three-fifths the length of the prothorax, widest behind eyes with the cheeks slightly rounded and narrowed posteriorly. Eyes prominent, occupying laterally about three-eighths the dorsal length of head; obtusely rounded and composed of somewhat large facets, pigment deep shading from a rich crimson to a deep black; post-ocular bristles knobbed, short and slender, about as long as the eye. Ocelli large, the anterior one being placed at the extreme vertex of the head which is slightly raised in the form of a hump between the eyes; and the posterior pair placed above a line through centre of eyes, and touching their inner margins. Mouth-cone blunt at tip and only reaching a little more than half-way across the prosternum; maxillary palpus long and broad with the apical joint more than three times the length of the basal joint and furnished with several sense-bristles at tip. Antennae about one and one-half times as long as the head, sub-approximate at base, joints three to six somewhat broadly claviform, practically sub-equal, the fourth being the broadest, and the sixth decidedly shorter and narrower than either of the three preceding joints. Sense-cones slender, long and acute, two on each of the joints three to six; spines slender, rather short and light coloured and therefore inconspicuous.

Prothorax about five-eighths as long as broad, slightly widened to mid-lateral angles; anterior margin emarginate, all bristles present, slender and knobbed, those at each posterior angle longest, those at each anterior angle and posterior-marginal pair long and about sub-equal; anterior-marginal and mid-lateral pairs shorter again and also sub-equal. Surface of prosternum deeply reticulated.

Pterothorax broader than the breadth across fore-coxae, about one and one-quarter times as long as broad; sides of mesothorax sub-parallel, and the metathorax rounded laterally to base of abdomen. Wings present, long and slender, reaching to the sixth abdominal segment, apparently slightly narrowed near middle; median vein obsolete; posterior fringe near apex double for eight or nine hairs. Legs long, the fore-leg slightly incrassate, fore-coxa with one prominent bristle and fore-tarsus armed with a minute tooth.

Abdomen about two-thirds the total length of the insect, and about as wide as the pterothorax; sides sub-parallel to the eighth segment and from thence narrowed to the tube.

Tube about five-eighths the length of head, twice as long as broad at base with the sides narrowing to tip where it is a little more than one-half as wide as at base; bristles at tip rather long, but weak. Abdominal bristles weak, those on the seventh segment being the longest. There are two pairs of strong wing-retaining spines on each of the segments two to seven.

♂. Very slightly smaller and perhaps more slender, having the fore-legs slightly stronger.

Larva.

There are two larvae in a separate tube which may almost certainly be regarded as belonging to this species.

It is a very distinct grub; broadly speaking it is divided into five transverse zones of coloration, the first fifth crimson, second yellowish-white, third and fifth crimson and the fourth same as the second.

More specifically the head, prothorax and fore-part of mesothorax are crimson with the head tinged with brown, and eyes (which are very small and bead-like) darker; rest of mesothorax and the whole of the metathorax yellowish-white; first three abdominal segments crimson; fourth, fifth and part of sixth segment yellowish-white, and base of sixth, seventh, eighth, ninth and tube crimson, the last two segments being darker than the preceding. There are seven antennal joints, which are dirty yellow and apically darker, the legs too are yellowish and darker at knees.

The bristles are knobbed as in the imago.

HAB. Hawaii; Kona, several females, two or three males and two larvae found on Hilo grass at 2000 feet, September 1892 (Perkins).

The larvae were not taken with the imagines but occurred on another occasion with an acarid from Hilo grass on Mauna Loa (W.).

DICERATOTHRIPS Bagnall.

There is a single specimen, apparently a female, the type of a new species of this genus in Dr Perkins' collection. It is possibly not an endemic form.

We now know three species which may be tabulated as follows:—

Antennae twice as long as head, joints three and four much elongated; ante-ocular spines long; fore-femur with a few more or less strong, short spines within......... *bicornis* Bagnall, *armatus* Bagnall.

Antennae scarcely one and one-half times the length of head, joints three and four not strongly elongated; ante-ocular spines short; fore-femur without short spines within .... *brevicornis*, sp. nov.

(1) *Diceratothrips brevicornis*, sp. nov.

Plate XVIII. figs. 1–3.

♀. Length about 3·0 mm., breadth of mesothorax 0·55 mm.

Colour shining black, fore-tibiae and all tarsi dark brown, apex of second antennal joint tinged with brown.

Head one and three-fifth times as long as broad behind eyes; anterior margin truncate with vertex raised in the form of a hump between the eyes; cheeks furnished with a few short bristles, slightly widened behind the eyes and gently narrowed to base; surface transversely striate. Eyes finely faceted, rounded and occupying laterally about one-quarter the length of head; post-ocular bristles long. Ocelli large, anterior ocellus on the extreme apex of vertex, overhanging; posterior pair on a line drawn through the anterior third of eyes and touching their inner margins. Pair of spines on forehead short, set close to the apical margins of the eyes and scarcely reaching to the apex of the first antennal joint. Antenna about one and one-half times the length of the head, separated at base, and inserted under the vertex; third joint only twice the length of the second and practically sub-equal with the fourth, being but very slightly longer; fifth about three-quarters the length of the fourth; sixth, five-sixths of fifth; seventh, four-fifths of sixth, and the apical joint about three-quarters the length of the penultimate. Sense-cones long and acute, apparently a pair on each of the joints three to six; hairs long and slender.

Prothorax about five-eighths the length of the head and one and three-quarters as wide as long; fore-margin narrowly emarginate, and a depressed transverse line near fore-margin slightly foveolate at each end. Sides diverging to base, and a shallow fovea behind each of these depressions. Bristles at each posterior angle long and very slender, moderately strong; posterior-marginal pair long, mid-lateral pair not quite so long and equally slender; those at anterior angles very short and stout, and anterior-marginal pair obsolete. Pterothorax a little longer than broad; side of metathorax conspicuously reticulated; wings coriaceous, reaching to the base of tube, wholly of a smoky-brown colour. Fore-coxa with one conspicuous but short spine, fore-femur swollen, and without strong spines within; fore-tibia moderately stout, with two short bristles below knee, and fore-tarsus armed with a short, sharp tooth. Hind and intermediate legs moderately long; femora broadened laterally, with a series of fairly long bristles on the outer edge; tibia with one long slender bristle without, near tarsus, and one long and one shorter bristle below knee. Intermediate-tibia with at least one, and hind-tibia with a few short and moderately stout spines near tarsus.

Abdomen slightly broader than the mesothorax, narrowing from the fifth segment to the base of tube. Tube about one and one-eighth times as long as the head and a little more than four times as long as broad at base, sharply constricted just before apex; terminal hairs weak and light-coloured, about two-thirds the length of the tube.

Abdominal spines very long, moderately stout, dark but light-coloured towards tip; those on ninth segment as long as tube. The surface of the tube is minutely asperate, having the appearance of being regularly set transversely with rings of minute scales.

♂ unknown.

HAB. Oahu; one female, in the mountains, Kawailoa gulch, April 1901 (Perkins, No. 768).

D. brevicornis very closely resembles *D. bicornis* Bagnall but may be recognized by its comparatively longer head, the short frontal cephalic spines, the shorter and comparatively stouter antennae, and the more slender tube.

In *D. bicornis* the head is broader, the antennae are twice the length of the head, the third joint being three times the length of the second (Plate XVIII. figs. 4 and 5), the frontal spines reach considerably beyond the apex of the first antennal joint, whilst the space between the eyes, and therefore between the posterior ocelli, is much greater. The form of the prothorax and the prothoracic bristles of both species are practically the same. The tube in *D. bicornis* is longer in comparison to the head but is only a little more than three times as long as broad at base. The surface is more shiny than in *D. brevicornis* apparently aciculate, or perhaps finely alutaceous and very sparsely, and very minutely setose. The bristles at the apex of the ninth abdominal segment are decidedly longer than the tube.

Suborder *TEREBRANTIA.*

Fam. THRIPIDAE Haliday.

HELIOTHRIPS Haliday.

(1) *Heliothrips haemorrhoidalis*, Bouché.

Syn. Hinds, Proc. U.S. Nat. Museum, 1903, XXVI. pp. 168—170.

This is a common hot-house pest throughout Europe and North America in which parts of the world it is almost, if not entirely, confined to green-houses[1]. Franklin considers that *H. haemorrhoidalis* is evidently a tropical species, and recently records it in a wild state from St Vincent and the Barbados[2].

Some of its food plants in St Vincent, he says, are Cacao and Kola, whilst in Barbados it is found on date palms.

There are three specimens in the Perkins collection, one from Kauai and the others from Hawaii, and as Dr Perkins makes no mention of finding them in hot-houses and states that one of the specimens was taken by sweeping, I presume that they were taken in the open, though, at the same time, *H. haemorrhoidalis* is most certainly not an endemic form.

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[1] I have just received numerous examples from Spain where they infest banana palms.

[2] Proc. U.S. Nat. Museum.

Hab. Kauai, Hawaii.—Kauai, 1 ♀, Halemanu, 4000 ft., May 25th, 1895 (Perkins, No. 525); 2 ♀, Hawaii, one from Kilauea, August 1896 (No. 656), and the other taken by sweeping, Kona, 2000 ft., September 1892 (in alcohol).

(2) *Heliothrips rubrocinctus*, Giard.

Physopus rubrocincta Giard, Bull. Soc. Ent. France, 1901, pp. 263—265.

Heliothrips rubrocinctus Franklin, Proc. U.S. National Museum, XXXIII. p. 719, Pl. LXIV. figs. 10 and 14, Pl. LXV. figs. 17, 20 and 21, 1908.

In a recent consignment of named *Thysanoptera*, mostly co-types, Mr Dudley Moulton has sent me larvae and imagines of *H. rubrocinctus* labelled Honolulu, where it occurs on mango. *H. rubrocinctus*, so named because of the bright red band of hypodermal pigment crossing the base of the abdomen on the upper side in the larval and nymph stages, is a very injurious species and is reported as a great pest on cacao in the West Indies; it is found also on Cashew tree, the guava, Liberian coffee (see Franklin) and mango as well as other plants.

Franklin fully describes this species, which is very evidently not an endemic form, and also its earlier stages.

Hab. Oahu; Honolulu, on mango, June 10th, 1909.

THRIPS L.

(1) *Thrips multispinus*, sp. nov.

Plate XVII. figs. 15—20.

♀. Length 1·0 to 1·3 mm. Breadth of mesothorax about 0·24 mm.

General colour brown, legs lighter and fore-tibiae and all tarsi yellow. Antennae uniform brown with the third joint in one specimen apparently lighter.

Head distinctly transverse, cheeks slightly arched behind the eyes and frons faintly arcuate between them. Eyes large and coarsely faceted, sparingly but strongly pilose; pigment deep black. Ocelli large, widely separated, posterior pair above a line drawn across the posterior margin of eyes. Two strong bristles between the anterior ocellus and posterior pair, and another equally long bristle behind each eye. Cheeks furnished with a few short bristles. Maxillary palpus three-segmented. Antennae moderately stout; joints three and four sub-equal with the outline laterally wavy, fifth smaller than three or four and five-eighths the length of sixth, and jointed with a broad surface to base of sixth, the sixth roundly, narrowing to tip; style short, being only about one-quarter the length of the sixth joint, blunt at apex.

Prothorax decidedly longer than dorsal length of head which latter is considerably retracted into prothorax; margins seemingly slightly depressed. Two long bristles at each posterior angle; moderately long anterior-marginal pair and similar pair, on each side of the mid-line at the posterior margin. One short stout forwardly-directed spine at each anterior angle, and two similar though slightly longer downwardly-directed lateral spines.

Mesothorax widely rounded to juncture of the metathorax, a short spine at each humeral angle; metathorax strongly transverse and only about three-quarters the length of mesothorax. Legs moderately stout and strongly spinose, each coxa armed with one or two curved spines, fore-femora short and broad; bristles long on outer edge of fore-tibia and all forwardly curved. Hind and intermediate tibia with a series of stronger spines for two-thirds the length within, and ending with a couple of very stout spines at the tip within; first joint of tarsus armed with a couple of short stout spines near the tip within, and a long and more slender spine at base without. Wings considerably over-reaching tip of abdomen; both longitudinal veins of the fore-wing armed with a series of regularly placed bristles each consisting of about 17 spines; hairs composing posterior fringes long, slender and wavy.

Abdomen slightly wider than mesothorax, oblong-ovate, strongly narrowing from the seventh segment to tip, tenth segment sharply contracted about the middle; spines at tip of abdomen arranged as in *Thrips tabaci*, long and strong.

♂. Apart from the sexual characters the ♂ differs by its much smaller size, being only about 0·65 mm. in length; totally yellow head and thorax with a reddish-brown tinge; antennae with a greyish-brown tinge; legs yellowish-white; abdomen narrower and shorter, wings long, considerably over-reaching the tip of abdomen.

HAB. Kauai, Molokai, Hawaii.—Hawaii, three females and one male, Kilauea, July 1895 (Perkins, No. 575), one female (No. 686). Kauai, one female Kauai on a high plateau, August 1896. Molokai, Mts., 4000 ft., one female, September 1893 (No. 163), and two females, Kalal, August 7th, 1893 (No. 172).

Genus SCOLOTHRIPS Hinds.

(1) *Scolothrips 6-maculatus*, Pergande.

Thrips 6-maculata Pergande, Trans. St Louis Acad., v. p. 543, 1894.

Thrips pallida Beach, Proc. Iowa Acad. Sciences (1895), III. pp. 226—227, 1896.

Scolothrips 6-maculata Hinds, Proc. U.S. Nat. Museum, XXVI. pp. 157—158, Pl. IV. figs. 42—45, 1902.

Mr Dudley Moulton tells me (in litt. October 24th, 1910) that he has specimens of this species from Honolulu. It is a very distinct form and the genus is easily separated from *Euthrips* by the presence of six pairs of prothoracic bristles, all very long, strong and sub-equal in length, and by the almost obsolete fore-fringe of the fore-wing, the cilia of which are very much shorter than the extremely long spines on the fore-margin.

It is a Nearctic form and is recorded by Miss Beach from bean, blackberry, elm and hop, by Pergande as having been found on many plants infested with red spider (mite), on which it had repeatedly been observed to feed, and by Bruner as feeding on mites in fold of cottonwood leaf.

From these records it will be seen that *S. 6-maculatus* is an interesting insect, and one of the very few thrips that have been observed to be predaceous in their habits.

HAB. Oahu, collected by Mr D. T. Fullaway on *Psiduium* at Honolulu and sent by him to Mr Dudley Moulton of the Californian State Commission of Horticulture, Sacramento, California, to whom our thanks are due for this record.

LIMOTHRIPS Haliday.

(1) *Limothrips cerealium* Haliday (*avenae* Hinds).

Syn. Uzel, Monographie der Ordnung *Thysanoptera*, Koniggratz, 1895, p. 89.

Limothrips avenae Hinds, Proc. U.S. Nat. Museum, 1903, XXVI. p. 138, Pl. I. figs. 10—12; Pl. II. fig. 13: *cerealium* vide Bagnall, Ann. Soc. Ent. Belgique, 1908, p. 351.

Limothrips cerealium chiefly infests cereal crops and has a wide European range, whilst Hinds records it (under the name *avenae*) from Pennsylvania as very abundant on oats during the summer of 1898. I have specimens collected by Mr Champion in Central America, though not yet recorded, and believe that the species will most probably be found wherever cereal crops are cultivated. I have also found it in various grasses and recently recorded it from the flower of the bittersweet (*Solanum dulcamara*); from the sap of a felled pine tree, and in large numbers from the witches broom, on birch[1]. There are two examples of this cosmopolitan species in the collection made by Dr Perkins.

HAB. Kauai, one ♀, Makaweli, 2500 ft., February 1897 (Perkins, No. 703). Hawaii, one ♀, Kona, 2500 ft., September 1892 (in alcohol).

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[1] The Journal of Economic Biology, June 1909, LV. pt. 2.

ACARINA.

H. S. Barber,
U. S. National Museum,
Washington, D. C.

By N. D. F. Pearce, M.A.

General remarks on the collection must necessarily be brief, as the small number of species represented in it (nine, besides a few specimens that cannot be certainly identified) is pretty sure evidence that the collection cannot be considered typical of this branch of the Hawaiian fauna. In Britain some hundred species have been identified and described, and a very simple method of collection (merely shaking or preferably slowly drying a few handfuls of moss) will generally produce an enormous number of individuals. But unless a collector's attention has been specially directed to the group, their small size will inevitably lead him to overlook them. I do not know by what method these specimens were collected, and am only surprised that so many were obtained.

Six of these species are well known as British ; or perhaps it would be better to say that they differ so little as to be practically indistinguishable. It must be remembered that we can only rely on external characteristics in a case like the present, and even when dealing with recent material the internal anatomy of such minute creatures is almost unobservable.

Of the new species the most interesting is one belonging to the genus *Tegeocranus*. Though some species of this genus are by no means rare in Britain, it is certainly one of the less common genera ; thus it has never to my knowledge occurred in Cambridgeshire (although this county has been considerably searched for Oribatidae) and I have but seldom received it from abroad. It appears to me to be a moribund genus. It is of special interest from the extraordinary forms assumed in the immature stages, forms utterly different not only from the adult, but, with an exception or two, from anything acarological, and paralleled only by the remarkable nymphal form of *Leiosoma palmicinctum* : perhaps too among the Tyroglyphidae by the somewhat uncommon Glyciphagi, *plumifer*, *palmifer* and *canestrinii*.

I now proceed to a description of the contained genera and species.

Fam. ORIBATIDAE.

Subfam. *PTEROGASTERINAE*.

ORIBATA Latreille.

(1) *Oribata globula* Nic.

Twenty-one specimens. A very widely distributed species, occurring in collections nearly everywhere. I cannot see that these differ appreciably from British types. (656 × is a nymph of this species, probably.)

HAB. Hawaii, Lanai.—Hawaii ; Kilauea. Lanai ; Halepaakai.

(2) *Oribata alata* Herm.

The nine specimens are mostly large and dark-coloured. The species is a very variable one, and by some authorities is sub-divided. Certainly the difference between an extremely small and a large individual seems very great, but all kinds of intermediate forms occur. The shape of the pteromorphae and the amount of their projection in front also varies, this would be expected, as they are of very thin chitin and extremely flexible. The pseudo-stigmatic organs also appear brittle in this species (they are exceedingly long and thin). I have suspected that they are often found with the terminal club broken off. This is known sometimes to occur in other species, so much so that they have even been described from the mutilated condition. I have never been able to recognize these minute differences as worthy of (or indeed assignable to) specific rank. The species is quite cosmopolitan.

HAB. Kauai, Lanai, Hawaii.—Kauai, Makaweli and Koholuamano; Hawaii, Olaa.

(3) *Oribata ovalis* Nic.

One specimen. In no way differing from the type. I have had specimens from India in which the chitin was immensely thickened and roughened, so that they almost seemed a different species. This is not infrequently the case in tropical specimens.

HAB. Kauai, Koholuamano.

(4) *Oribata lapidaria* Lucas.

One specimen. In somewhat bad condition, but probably this species. In Britain it sometimes occurs on trees, lime and thorn, occasionally apple, in vast numbers, literally in masses—and has been accused of doing damage. It is not certain whether this is so, or whether it is attracted by a diseased condition of the tree. I have noticed it swarming on a young apple-tree which was cankered, and shortly afterwards died.

HAB. Hawaii, Kilauea.

(5) *Oribata oriformis*, sp. nov.

One specimen, in spirit. A large species 1·1 mm. in length. Colour light brown, this may have been affected by the preservative. Texture finely punctate, much as in some specimens of *O. orbicularis*. Cephalothorax long and bluntly pointed, lamellae thick blades on edge, cusps very small or non-existent, translamella alive, but quite marked. Pseudo-stigmatic organs small, not projecting much, clavate. Abdomen egg-shaped, produced almost into a point posteriorly (whence the specific name), apparently hairless. Pteromorphae normal, much as in *orbicularis*. Legs long for the genus.

There should be no difficulty in recognizing individuals of this species at any future time, the pointing of the abdomen is not common in this genus.

HAB. Hawaii, Kona.

Subfam. *APTEROGASTERINAE.*

NOTASPIS Herm.

(1) *Notaspis lucorum* Koch.

18 specimens. Similar to British examples. A somewhat fragile creature, several are damaged, one mounted on its back, together with a smaller specimen which *may* be *N. tibialis* Nic.

HAB. Maui, Hawaii.—Maui, Haleakala. Hawaii, Kilauea.

NEOLIODES = *Liodes* Heyden.

(1) *Neoliodes theleproctus* (?) Herm.

15 individuals. Very widely distributed, and these specimens do not differ much from the type, so that I hesitate to describe them as a new species. At the same time it would be difficult to state positively that they are identical. The species carries its cast larval and nymphal skins, as several others do, and the loss of one or more of these materially affects its appearance.

HAB. Kauai, Lanai, Molokai, Hawaii. Hawaii, Kona—Mt. Roele, Lanai—Halemanu—Lanai—Oahu Mts.—Kauai, Makaweli—Kauai, Koholuamano—Molokai Mts.

HOPLODERMA = HOPLOPHORA Koch.

(1) *Hoploderma dasypus* Dugès.

Eight specimens, large and dark and probably this species; *magna* being much rougher, among other differences. The species varies a good deal both in size and colour, as is often the case with creatures which in the larval (and nymphal) stage are wood-borers.

HAB. Kauai, Oahu, Lanai, Hawaii.—Mt. Waimea, Kauai—Kona, Hawaii—Kaala Mts., Oahu—Lanai.

TEGEOCRANUS Nic.

(1) *Tegeocranus pustulatus*, sp. nov.

Two specimens; one mounted on micro. slide. This much resembles *Tegeocranus latus* Koch; that is in general appearance. The chief differences are in pseudo-stigmata and pseudo-stigmatic organs, lamellae, and especially abdominal markings. Size ·75 mm.; this is smaller than *latus* (·90 mm.). Pseudo-stigmata very large, projecting laterally and cornucopia-shaped. Pseudo-stigmatic organs short, clavate, not projecting beyond pseudo-stigmata. Lamellae blades on edge, narrow, reticulated, slightly undulating. Abdominal markings small raised dots, sparsely distributed; totally different from the vermiform corrugations of *latus*. I have however a species from the New Forest which is similarly covered with raised dots, it is probably new, it is not this species. Colour brown, not very dark. Legs rather long for the genus.

HAB. Molokai Mountains.

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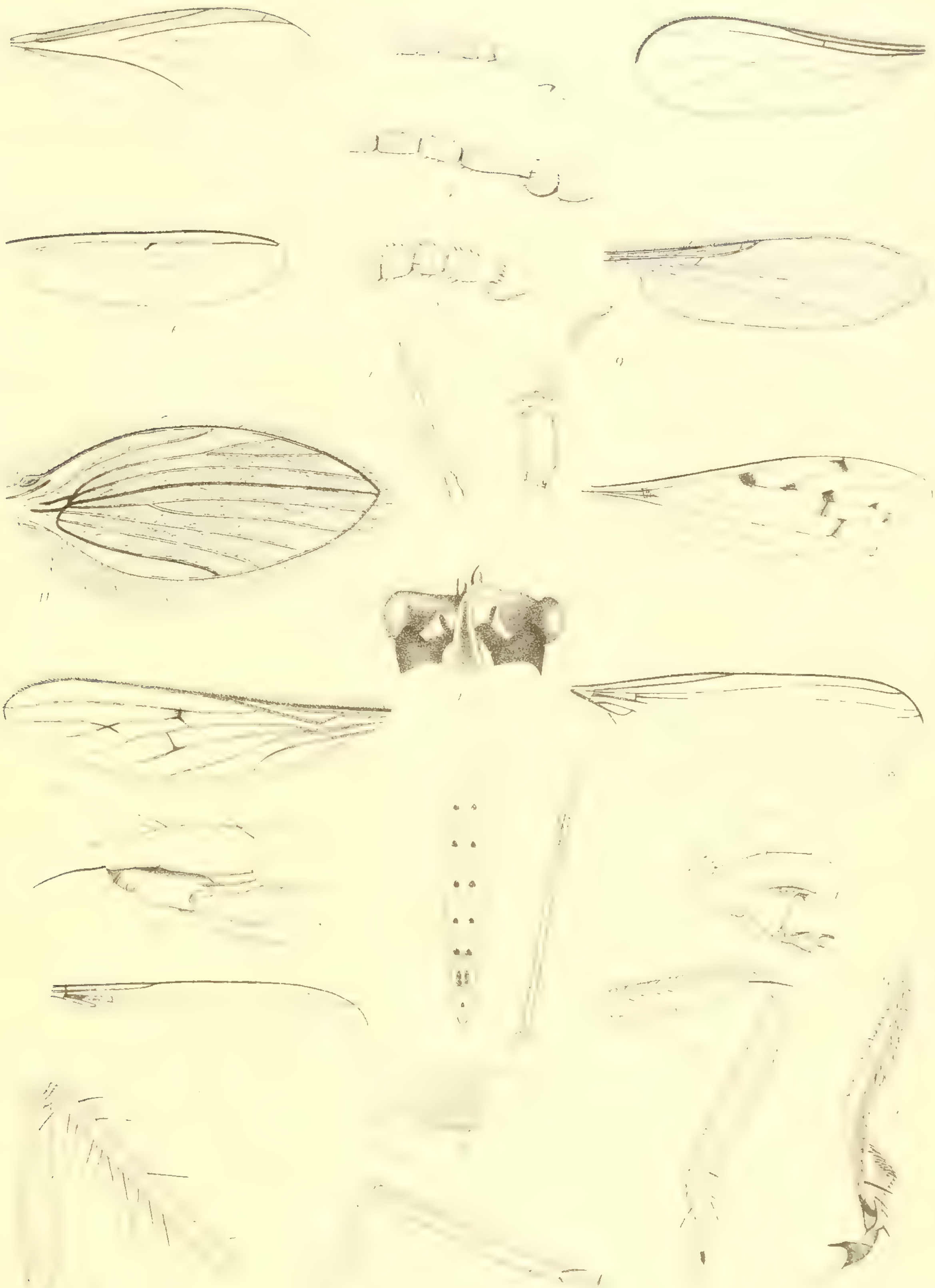
DESCRIPTION OF PLATE I. (VOL. III.)

DIPTERA.

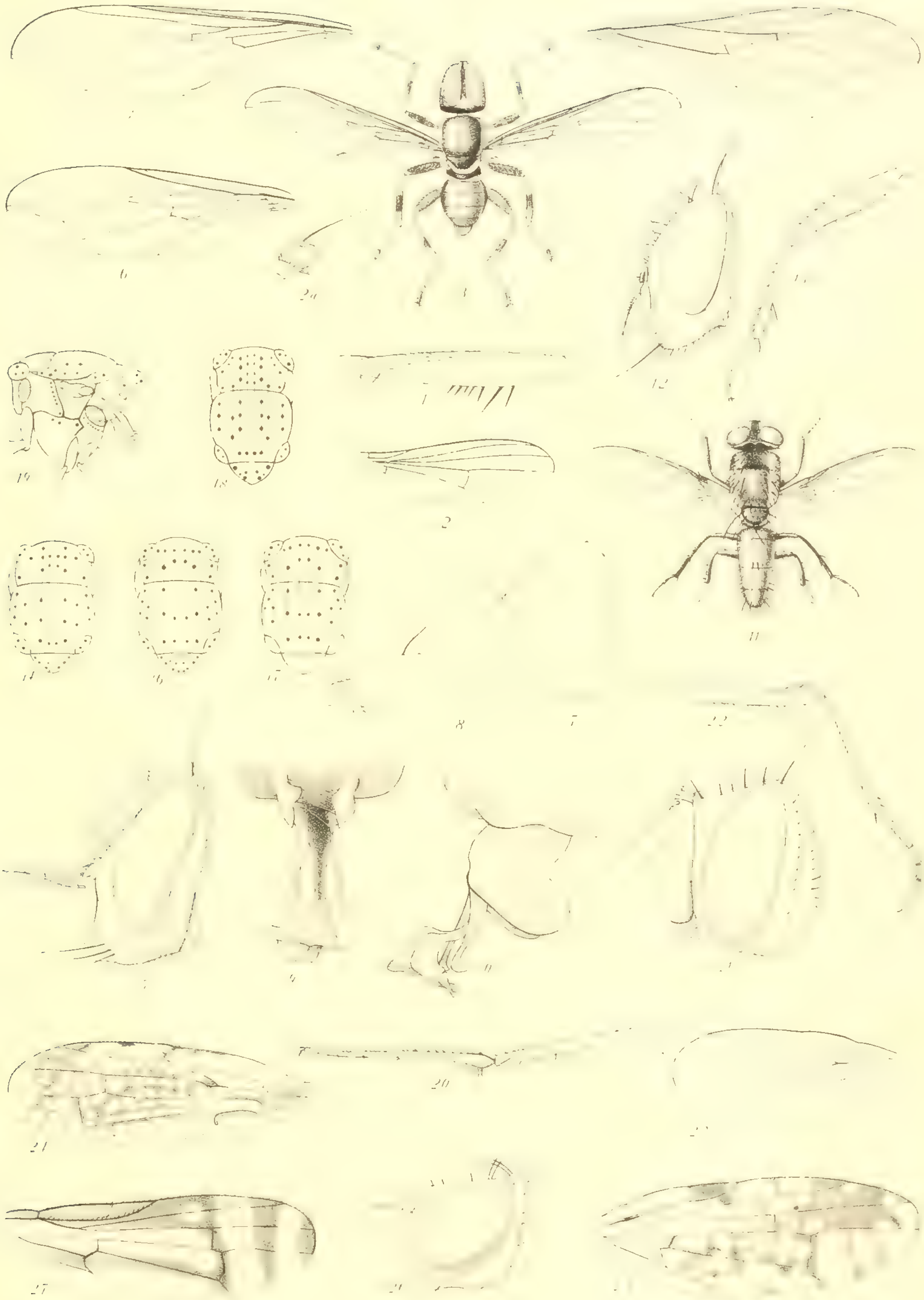
Fig. 1. *Sciara molokaiensis*, sp. n., wing.
Fig. 2. *Platyura fuscocostata*, sp. n., wing.
Fig. 3. ,, ,, base of ♀ antenna.
Fig. 4. „ *hawaiiensis*, sp. n., base of ♂ antenna.
Fig. 5. „ *insularis*, sp. n., base of ♀ antenna.
Fig. 6. *Chironomus hawaiiensis*, sp. n., wing.
Fig. 7. ,, ,, antenna of ♀.
Fig. 8. *Ceratopogon* sp., wing.
Fig. 9. ,, „ apex of ♂ antenna.
Fig. 10. „ „ apex of fore tarsus of ♂.
Fig. 11. *Psychoda inornata*, sp. n., wing.
Fig. 12. *Limnobia perkinsi*, sp. n., wing.
Fig. 13. *Dicranomyia apicalis*, sp. n., ♂ genitalia seen from below.
Fig. 14. *Styringomyia didyma*, sp. n., lateral view of head.
Fig. 15. ,, ,, dorsal view of abdomen.
Fig. 16. ,, ,, wing.
Fig. 17. *Gnamptopsilopus patellifer* Thomson, lateral view of ♂ genitalia.
Fig. 18. ,, ,, wing.
Fig. 19. ,, ,, hind tibia of ♂ seen from without.
Fig. 20. ,, *pallidicornis*, sp. n., lateral view of ♂ genitalia.
Fig. 21. ,, ,, wing.
Fig. 22. *Campsicnemus fimbriatus*, sp. n., intermediate femur and tibia of ♂.
Figs. 23 & 24. ,, *distortipes*, sp. n., intermediate femur, tibia and metatarsus of ♂, showing outer and hind surfaces.
Fig. 25. *Campsicnemus calcaratus*, sp. n., intermediate femur, tibia and metatarsus of ♂.



DESCRIPTION OF PLATE II. (VOL. III.)

DIPTERA.

Fig. 1. *Chrysotus spiniger*, sp. n., intermediate femur of ♂.
Fig. 2. ,, ,, wing.
Fig. 2 *a*. ,, ,, antenna.
Fig. 3. *Pipunculus molokaiensis*, sp. n., ♂.
Fig. 4. ,, ,, wing.
Fig. 5. ,, *nigrotarsatus*, sp. n., wing.
Fig. 6. ,, *rotundipennis*, sp. n., wing.
Fig. 7. *Xanthogramma grandicornis* Mcq., ♂, lateral view of head.
Fig. 8. ,, ,, antenna.
Fig. 9. ,, ,, ♂ genitalia seen from below.
Fig. 10. ,, ,, ,, lateral view.
Fig. 11. *Dyscritomyia limbipennis* Thoms., ♂.
Fig. 12. ,, ,, ♂, lateral view of head.
Fig. 13. ,, ,, fore leg of ♂.
Fig. 14. ,, ,, chaetotaxy of thorax.
Fig. 15. *Prosthetochaeta robusta*, sp. n., ♂, lateral view of head.
Fig. 16. ,, ,, chaetotaxy of thorax.
Fig. 17. ,, *lucilioides*, sp. n., ,, ,,
Figs. 18 & 19. *Sarcophaga pallinervis* Thoms., ,, ,,
Fig. 20. *Coenosia latimana*, sp. n., fore tibia and tarsus of ♂.
Fig. 21. *Acritochaeta pulvinata*, sp. n., ♂, lateral view of head.
Fig. 22. ,, ,, fore leg of ♂.
Fig. 23. ,, ,, wing.
Fig. 24. *Tephritis limpidapex*, sp. n., wing.
Fig. 25. ,, *cratericola*, sp. n., wing.
Fig. 26. *Phaeogramma vittipennis*, sp. n., lateral view of head.
Fig. 27. ,, ,, wing.



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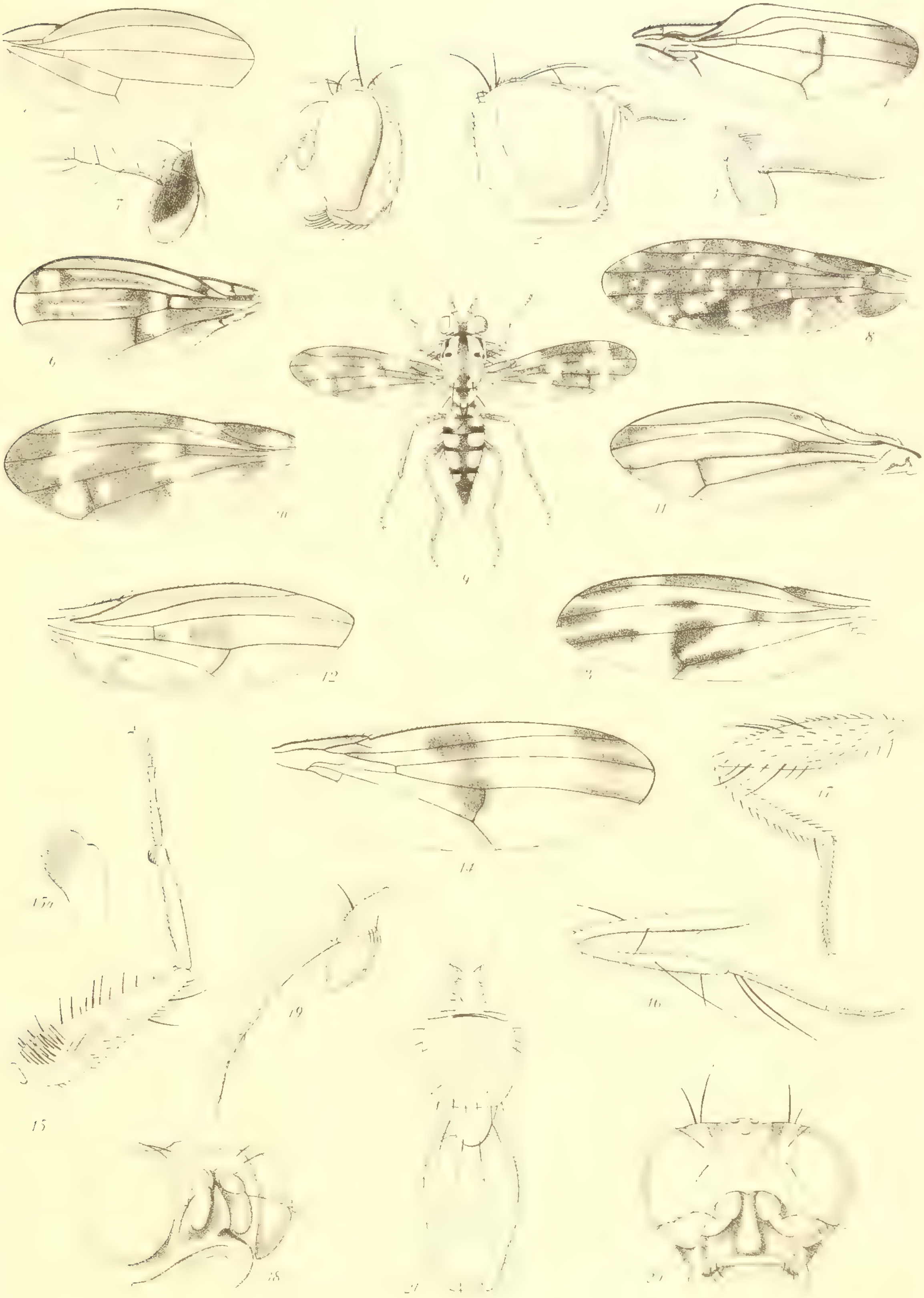
DESCRIPTION OF PLATE III. (VOL. III.)

DIPTERA.

Fig. 1. *Scatella hawaiiensis*, sp. n., wing.
Fig. 2. *Idiomyia perkinsi*, sp. n., ♂, lateral view of head.
Fig. 3. ,, ,, antenna of ♂.
Fig. 4. ,, ,, wing of ♂.
Fig. 5. *Hypenomyia varipennis*, sp. n., ♂, lateral view of head.
Fig. 6. ,, ,, wing.
Fig. 7. *Drosophila picticornis*, sp. n., antenna.
Fig. 8. ,, ,, wing.
Fig. 9. ,, *variegata*, sp. n., ♀.
Fig. 10. ,, ,, wing.
Fig. 11. ,, *undulata*, sp. n., wing.
Fig. 12. ,, *perkinsi*, ,,
Fig. 13. ,, *conspicua*, ,,
Fig. 14. ,, *hawaiiensis*, ,,
Figs. 15 & 15*a*. ,, *anomalipes*, sp. n., fore leg of ♂ and end of tibia more highly magnified.
Fig. 16. ,, *setiger*, sp. n., fore leg of ♂.
Fig. 17. ,, *crassifemur*, sp. n., fore leg of ♂.
Fig. 18. ,, *nasalis*, sp. n., head of ♂.
Fig. 19. ,, *longiseta*, sp. n., antenna.
Fig. 20. ,, *carinata*, sp. n., head of ♀.
Fig. 21. *Ophthalmomyia lacteipennis* Loew, dorsal view of ♂.

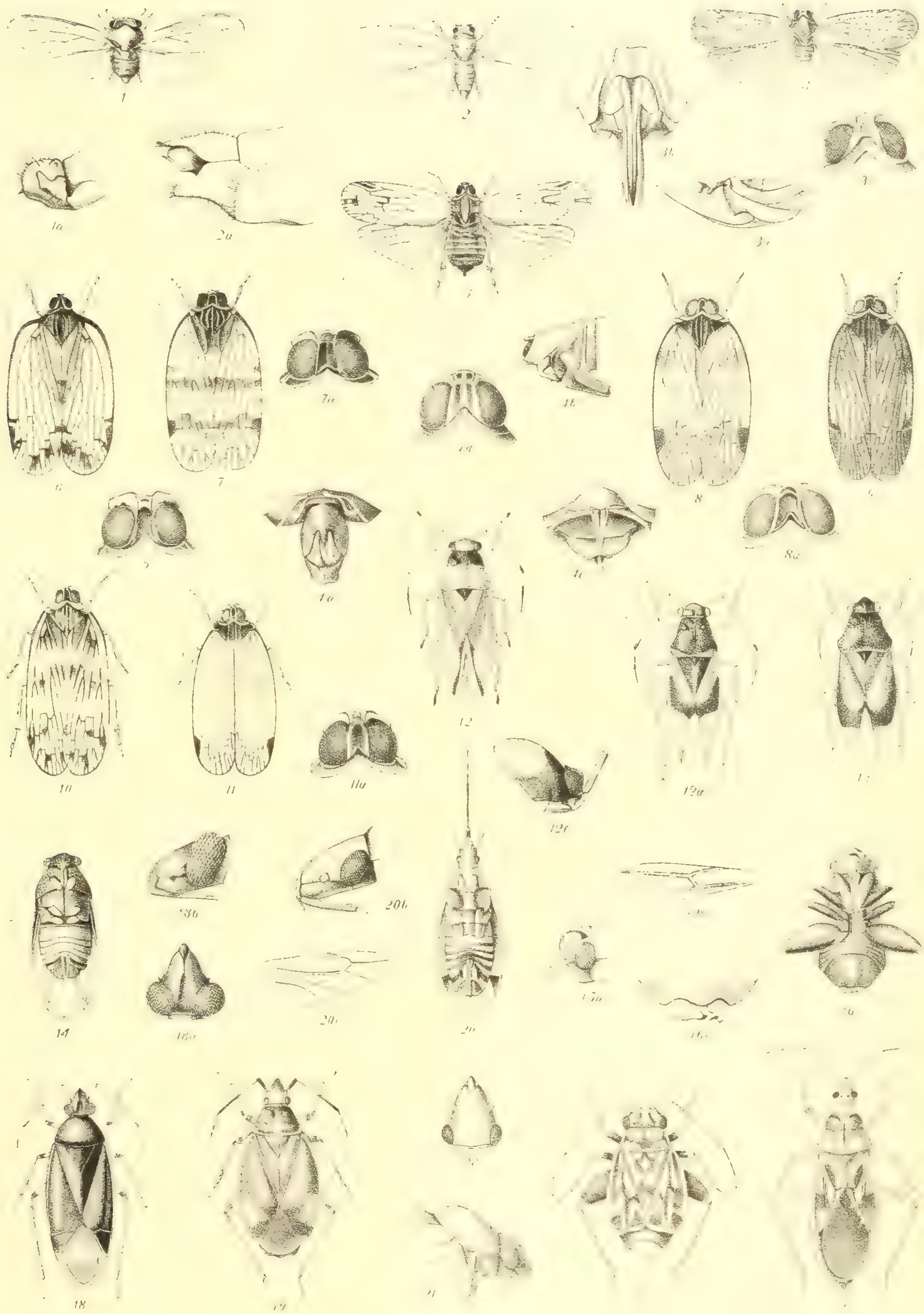


E.Wilson

DESCRIPTION OF PLATE IV. (VOL. III.)

HEMIPTERA.

Fig. 1. *Hevaheva perkinsi* Kirk.
Fig. 1*a*. ,, ,, ♂ genital segment in profile.
Fig. 2. *Trioza iolani* Kirk.
Fig. 2*a*. ,, ,, ♂ genital segment in profile.
Fig. 3. *Iolania perkinsi* Kirk.
Fig. 3*a*. ,, ,, ♀ genital segment in profile.
Fig. 3*b*. ,, ,, ,, ,, seen from below.
Fig. 3*c*. ,, ,, ♀ head and pronotum.
Fig. 4. *Oliarus tamehameha* Kirk.
Fig. 4*a*. ,, ,, ♂ genital segment from below.
Fig. 4*b*. ,, ,, ,, ,, in profile.
Fig. 4*c*. ,, ,, ♀ genital segment from below.
Fig. 4*d*. ,, ,, head and pronotum.
Fig. 5. *O. kanakanus* Kirk., head and pronotum.
Fig. 6. *O. hevaheva* Kirk.
Fig. 7. *O. opuna* Kirk.
Fig. 7*a*. ,, ,, head and pronotum.
Fig. 8. *O. tarai* Kirk.
Fig. 8*a*. ,, ,, head and pronotum.
Fig. 9. *O. tarai* var. *morai* Kirk.
Fig. 10. *O. orono* Kirk.
Fig. 11. *O. koanoa* Kirk.
Fig. 11*a*. ,, ,, head and pronotum.
Fig. 12. *Sulamita lunalilo* Kirk., macropterous form (light coloured).
Fig. 12*a*. ,, ,, ,, ,, (dark coloured).
Fig. 12*b*. ,, ,, neuration of hind wing.
Fig. 12*c*. ,, ,, head and pronotum in profile.
Fig. 13. ,, ,, brachypterous form.
Fig. 14. ,, ,, macropterous form underneath.
Fig. 15. *Nesidiorchestes hawaiiensis* Kirk. ♂.
Fig. 15*a*. ,, ,, ,, head in profile.
Fig. 16. ,, ,, ,, ventral aspect.
Fig. 16*a*. ,, ,, ,, clasps.
Fig. 17. *Alloeocranum biannulipes*, Montr.
Fig. 18. *Pseudoclerada morai* Kirk. ♂, macropterous form.
Fig. 18*a*. ,, ,, head and eyes above.
Fig. 18*b*. ,, ,, head in profile.
Fig. 19. ,, ,, ♀, brachypterous form.
Fig. 20. ,, ,, ♀, ventral aspect.
Fig. 20*a*. ,, ,, head above.
Fig. 20*b*. ,, ,, head in profile.
Fig. 20*c*. ,, ,, neuration of hind wing.
Fig. 21. *Baracus hawaiiensis* Kirk., head, pronotum, and scutellum in profile.



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3c
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7a
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8a
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14
18b
20b
20a
20
16a
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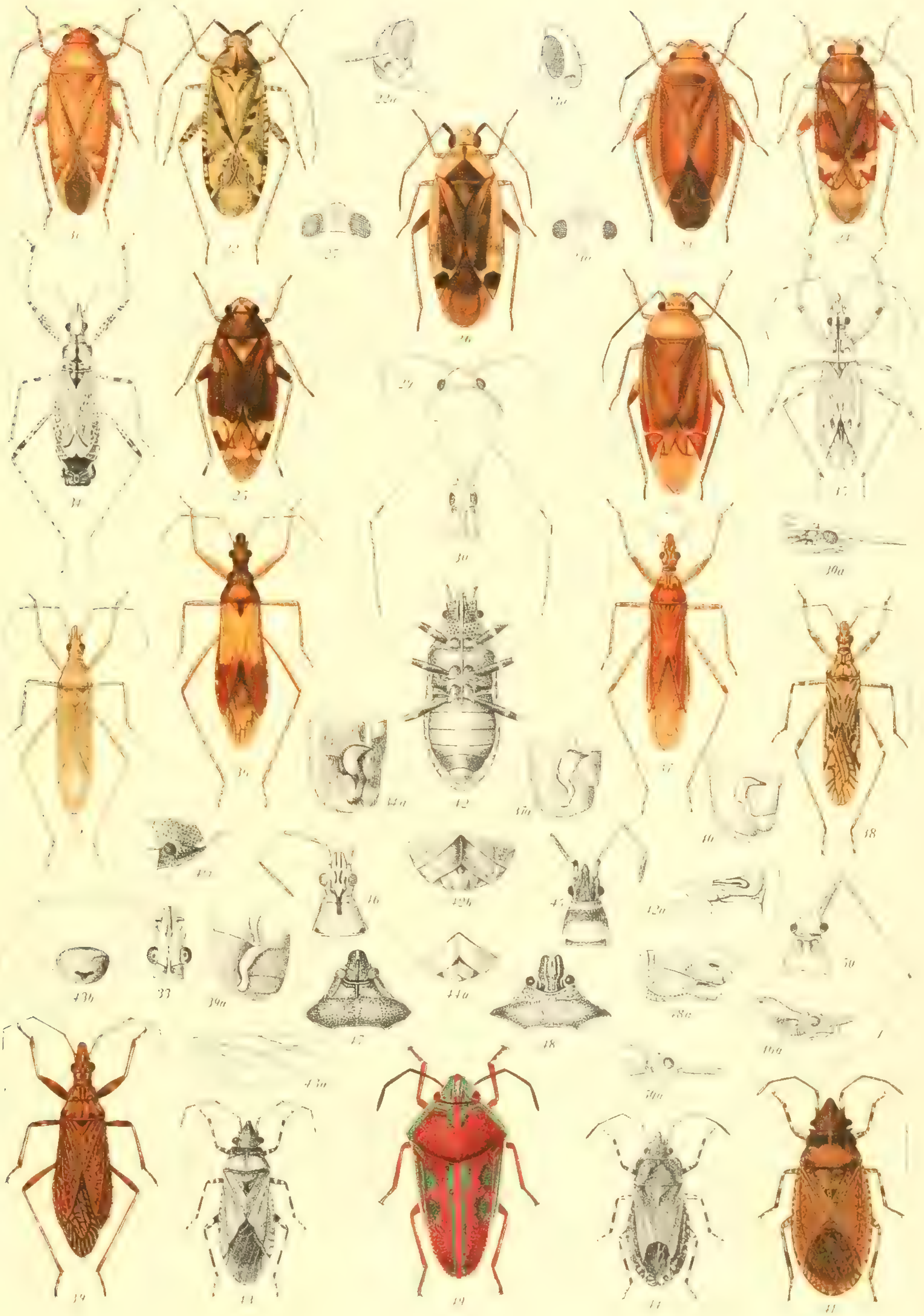
DESCRIPTION OF PLATE V. (VOL. III.)

HEMIPTERA.

Fig. 22.	*Kamehameha lunalilo* Kirk.
Fig. 22*a*.	,, ,, head in profile.
Fig. 23.	*Sarona adonias* Kirk.
Fig. 23*a*.	,, ,, head in profile.
Fig. 24.	*Orthotylus daphne* Kirk.
Fig. 25.	,, ,, var. *kassandra* Kirk.
Fig. 26.	*O. azalais* Kirk.
Fig. 27.	*O. kanakanus* Kirk., ♂ head above.
Fig. 27*a*.	,, ,, ♀ ,,
Fig. 28.	*O. kekele* Kirk.
Fig. 29.	*Opuna hawaiiensis* Kirk., head and pronotum.
Fig. 30.	*Oronomiris hawaiiensis* Kirk., head and pronotum.
Fig. 30*a*.	,, ,, ,, ,, in profile.
Fig. 31.	*Psallus sharpianus* Kirk.
Fig. 32.	*Reduviolus innotatus* White.
Fig. 33.	*R. rubritinctus* Blackburn, head and antennae.
Figs. 34 & 35.	*R. lusciosus* White.
Fig. 34*a*.	,, ,, ♂ hook.
Fig. 36.	*R. sharpianus* Kirk.
Figs. 37 & 38.	*R. subrufus* White.
Fig. 37*a*.	,, ,, ♂ hook.
Fig. 39.	*R. morai* Kirk.
Fig. 39*a*.	,, ,, ♂ hook.
Fig. 40.	*R. tarai* Kirk., ♂ hook.
Fig. 41.	*Metrarga nuda* White.
Fig. 41*a*.	,, ,, head in profile.
Fig. 42.	,, ,, ♂ beneath.
Fig. 42*a*.	,, ,, stink-gland orifices.
Fig. 42*b*.	,, ,, ♀ genital segments beneath.
Fig. 43.	*M. contracta* Blackb.
Fig. 43*a*.	,, ,, neuration of hind wing.
Fig. 43*b*.	,, ,, ♂ genital segments below.
Fig. 44.	*M. villosa* Blackb.
Fig. 44*a*.	,, ,, ♀ genital segments below.
Fig. 45.	*Sephora criniger* White, head and pronotum (left antenna malformed).
Fig. 46.	*Ithamar hawaiiensis* Kirk., head and pronotum.
Fig. 46*a*.	,, ,, ,, ,, in profile.
Figs. 47 & 48.	*Oechalia griseus* Burm., head and pronotum of the two extremest forms.
Fig. 48*a*.	,, ,, stink-gland orifice.
Fig. 49.	*Coleotichus blackburniae* White.
Fig. 50.	*Nesiomiris hawaiiensis* Kirk., head and pronotum.
Fig. 50*a*.	,, ,, ,, ,, in profile.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44a
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42b
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38a
40a
43a
50a

DESCRIPTION OF PLATE VI. (VOL. III.)

COLEOPTERA. *CARABIDAE.*

Fig. 1. *Deropristus puncticeps*, with right elytron expanded showing the small vestigial wing; at side a fragment showing sculpture of disc of elytron.

Fig. 2. *Baryneus sharpi*, with elytron and the fully-developed wing expanded.

Fig. 3. *Atrachycnemis sharpi*; to left fragment showing sculpture of elytron.

Fig. 4. *Anchotefflus gracilis*; to left fragment showing sculpture of elytron.

Fig. 5. *Pseudobroscus lentus*; to left fragment showing sculpture of elytron.

Fig. 6. *Disenochus aterrimus*; to right fragment showing sculpture of elytron.

Fig. 7. *Barypristus incendiarius*: the angles of prothorax are rather too prominent.

Fig. 8. *Anchonymus agonoides.*

Fig. 9. *Mauna frigida.*

Fig. 10. *Metromenus sphodriformis.*

Fig. 11. *Mecostomus perkinsi.*

Fig. 12. Elytra of *Mecyclothorax montivagus*, seen outside and inside, showing the "fault" on the margin characteristic of Pterostichides.

Fig. 13. Hind foot of *Metromenus pavidus*; outer side showing tarsal grooves × 15.

Fig. 14. Tarsus of *Metromenus aequalis* × 17, *a* upper, *b* lower face.

Fig. 15. *Baryneus sharpi*, posterior tarsus, × $\frac{13}{2}$, *a* upper, *b* lower face.

Fig. 16. *Colpodiscus lucipetens*, posterior tarsus, × 10, *a* upper, *b* lower face.

Fig. 17. *Metromenus mutabilis*, posterior tarsus, × 15, *a* upper, *b* lower face.

Fig. 18. *M. fraudator*, vestigial wing, × 6.

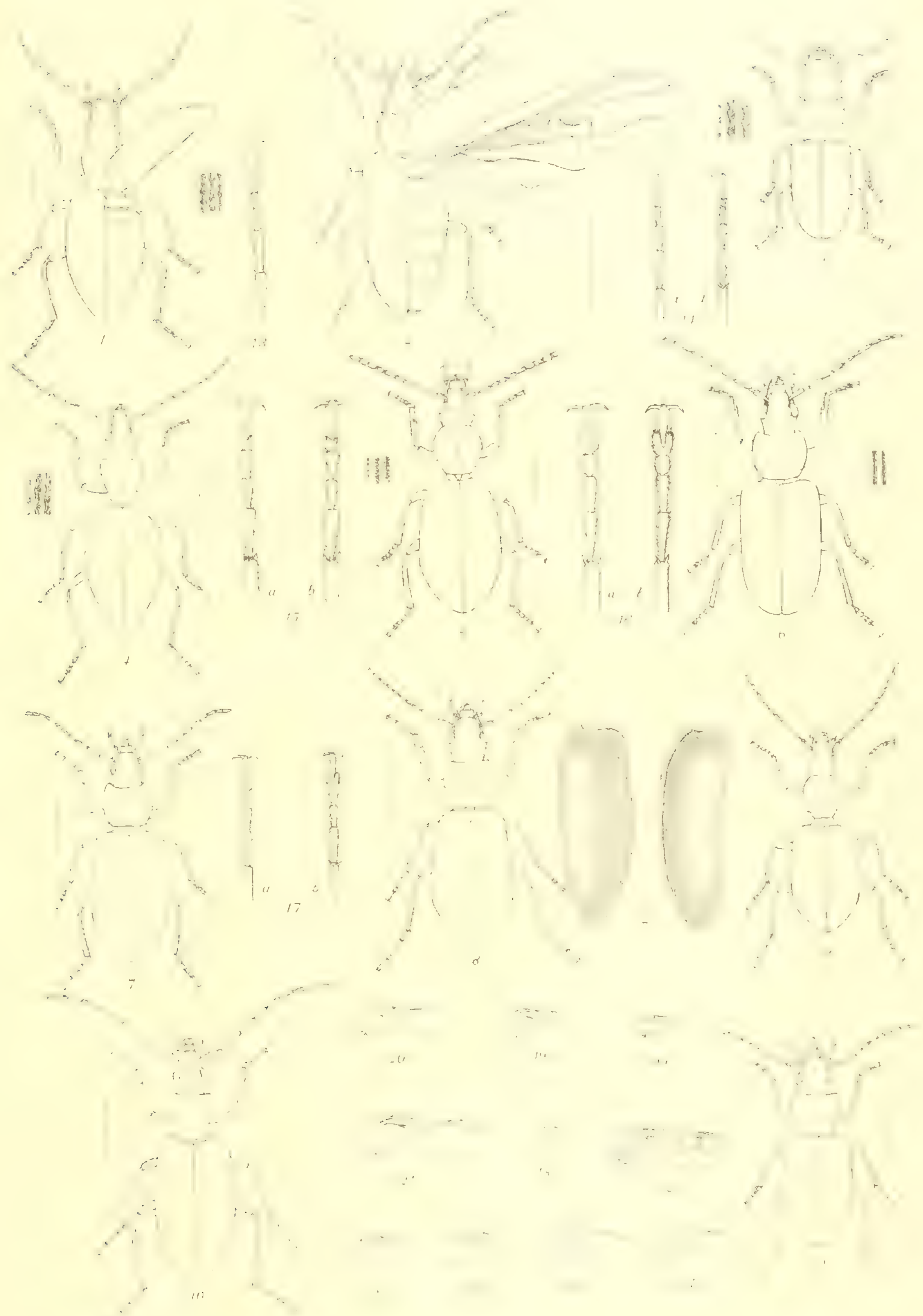
Fig. 19. *M. sphodriformis* from Haleakala, vestigial wing, × 6; 19*a*, same of specimen from Molokai.

Fig. 20. *Apteromesus maculatus*, vestigial wing, × 6 (this is a little too broad).

Fig. 21. *Barypristus incendiarius*, vestigial wing × 3.

Fig. 22. *Chalcomenus costatus*, wing × 3.

Fig. 23. *Barypristus rupicola*, vestigial wings × 3, showing the variation *a*, *b*, *c*, *d*.



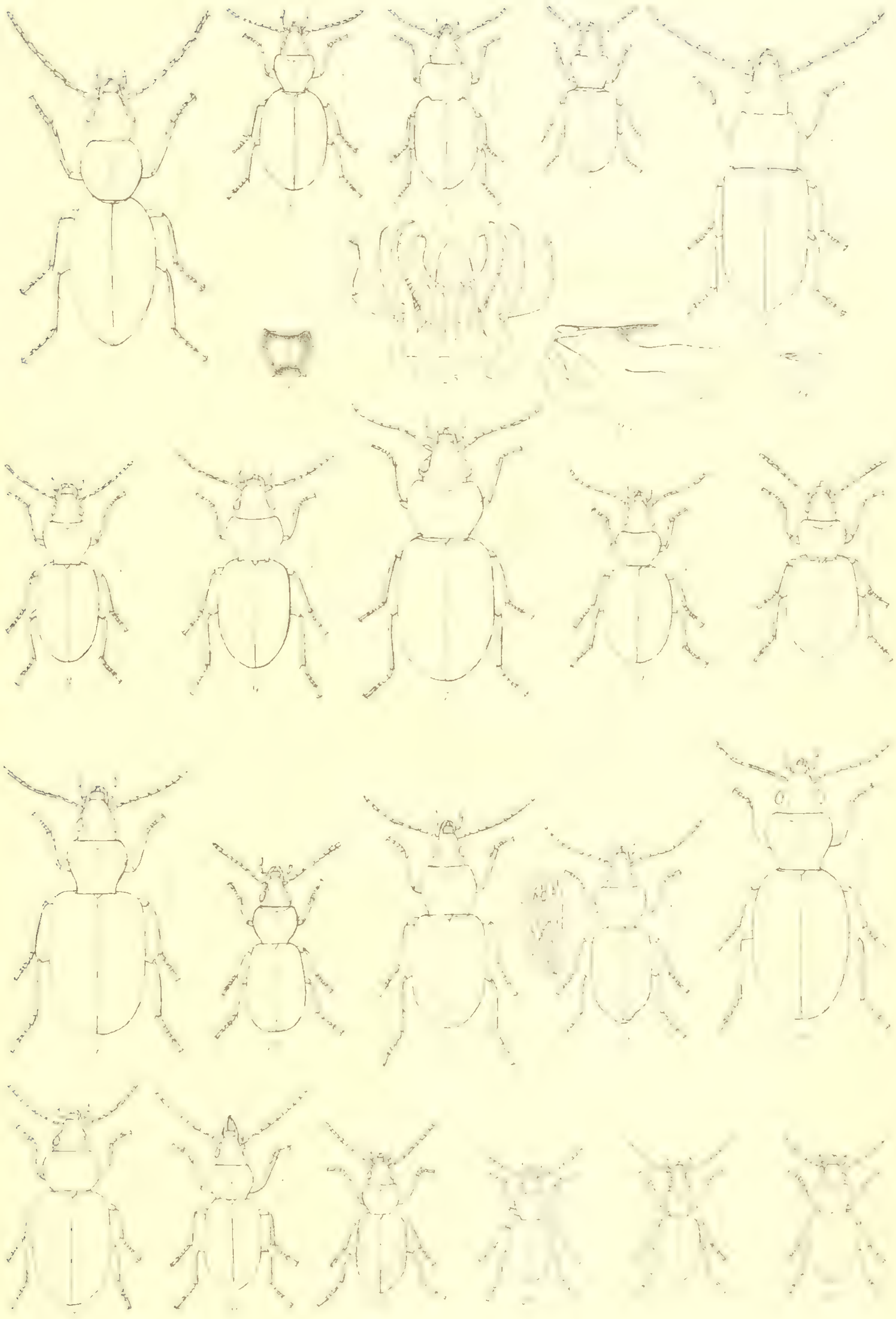
M A Sharp del et lith.

DESCRIPTION OF PLATE VII. (VOL. III.)

COLEOPTERA. *CARABIDAE.*

Fig. 1. *Derobroscus micans.*
Fig. 2. *Mesothriscus abax.*
Fig. 3. *Mecyclothorax palustris*, prothorax.
Fig. 4. *M. pusillus.*
Fig. 5. *M. bradycellinus.*
Fig. 6. *M. ovipennis.*
Fig. 7. *M. amaroides.*
Fig. 8. *Thriscothorax perstriatus.*
Fig. 9. *T. constrictus.*
Fig. 10. *T. insolitus.*
Fig. 11. *T. paradoxus.*
Fig. 12. *T. apicalis.*
Fig. 13. *T. perkinsi.*
Fig. 14. *T. ducalis.*
Fig. 15. *T. platysminus.*
Fig. 16. *Metrothorax molops.*
Fig. 17. *M. rotundicollis.*
Fig. 18. *Gnatholymnaeum blackburni* (cf. fig. 25).
Fig. 19. *Bembidium advena.*
Fig. 20 *Nesocidium laeticulum* (cf. fig. 24).
Fig. 21. *N. rude.*
Fig. 22. *Atelidium munroi.*
Fig. 23. Wing of *Bembidium molokaiense.*
Fig. 24. Vestigial wing of *Nesocidium laeticulum.*
Fig. 25. Trophi of *Gnatholymnaeum blackburni*, seen from below : *a*, the tusk-like mandibles.

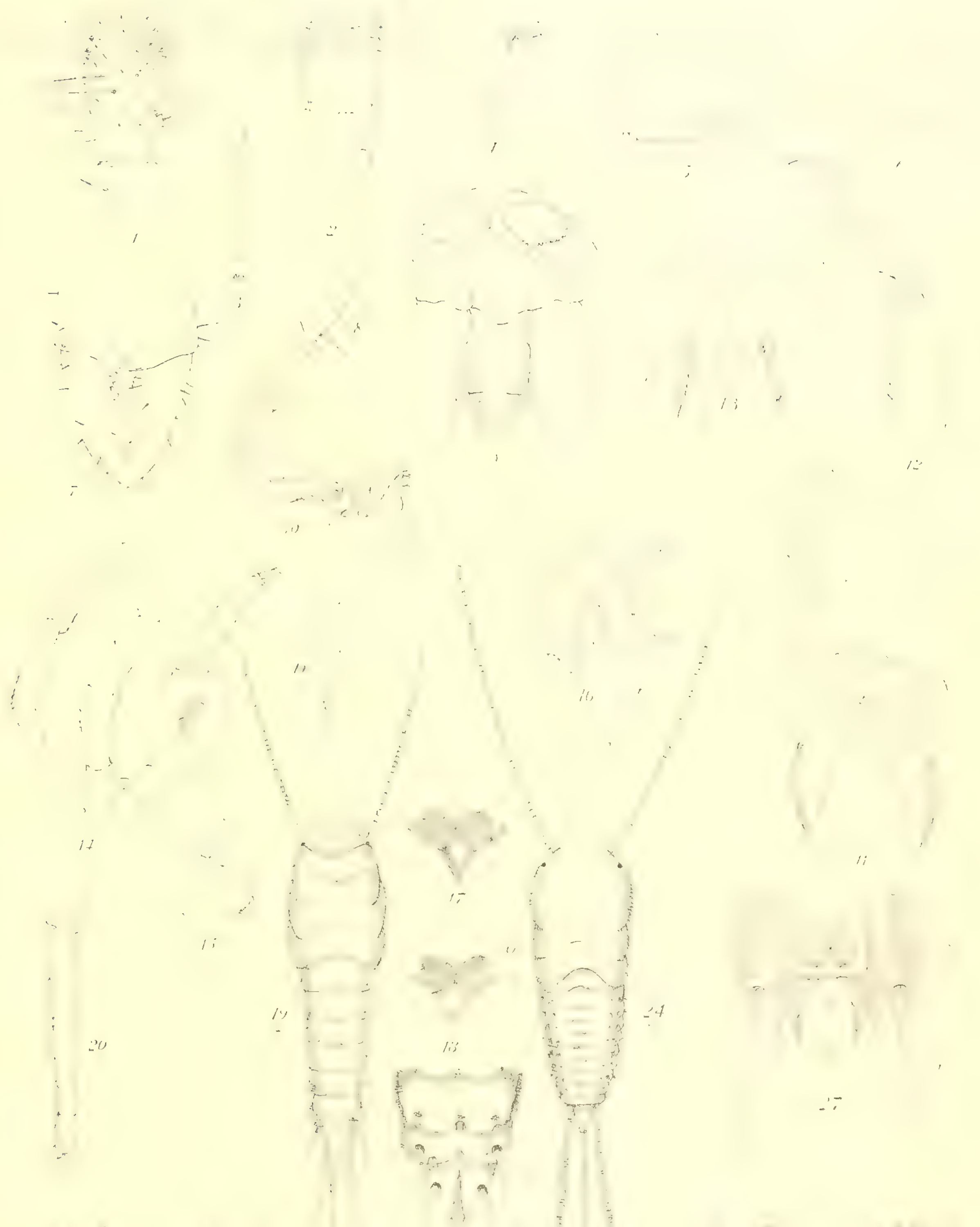
All the figures on this plate (except the separated portions) are magnified on the same scale, viz. × 4.



DESCRIPTION OF PLATE VIII. (VOL. III.)

THYSANURA.

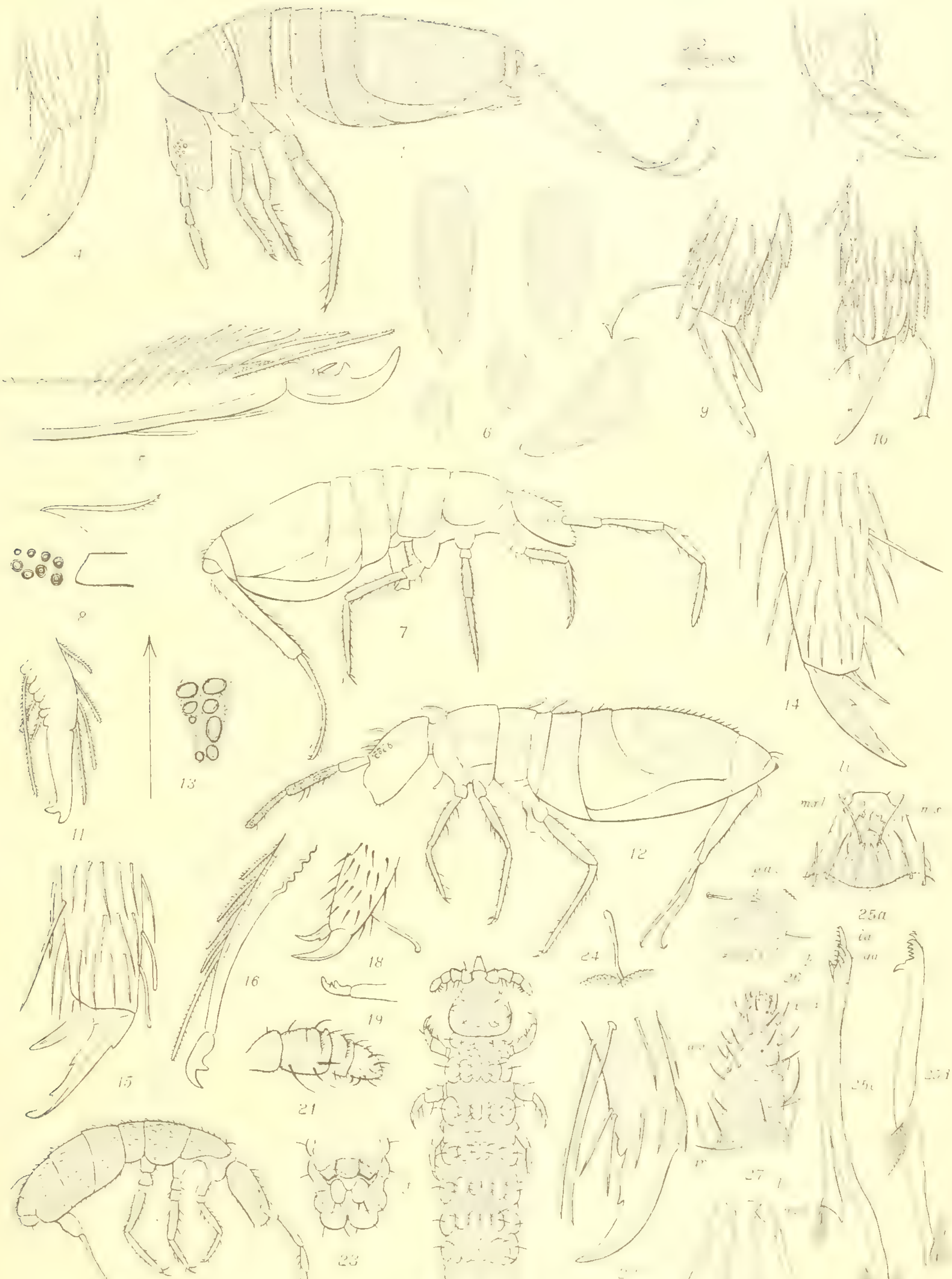
Fig. 1.	*Japyx sharpi,*	art. 2—7 of the antenna from below; s^2—s^{13} sensitive setae.
Fig. 2.	..	,, ,, ,, above; s^1—s^{11} sensitive setae.
Fig. 3.	..	a sensitive seta (s^2) of the 4th articulus of the antenna.
Fig. 4.	..	tarsus and praetarsus.
Fig. 5.	..	a half of the first abdominal subcoxosternum: *st* sternum, *sc* subcoxae.
Fig. 6.	,,	a half of the third abdominal subcoxosternum: *st* sternum, *sc* subcoxae.
Fig. 7.	..	end of the 10th abdominal segment with the forceps.
Fig. 8.	,,	latero-posterior part of the 7th tergit.
Fig. 9.	*Machilis perkinsi,*	caput from above with the first segment of the antenna: *o* oculus, *oc* ocellus; *A* first segment of the antenna, *G* clypeus, *L* labrum.
Fig. 10.	..	first maxilla with the palpus: *me* lobus maxillaris externus, *mi* lobus maxillaris internus, *pa* palpus maxillaris, *pr* processus posterior articuli primi.
Fig. 11.	..	labium with the palpus (*pl*).
Fig. 12.	..	tibia, tarsus and praetarsus of the first legs.
Fig. 13.	,,	subcoxosternum of the 4th abdominal segment: *stl* lateral part, *stm* median part, *p* styli, *vsc* vesiculae subcoxales.
Fig. 14.	*Machilis heteropus,*	palpus maxillaris: *pr* processus superus posticus articuli primi.
Fig. 15.	,,	first legs of the male.
Fig. 16.	,,	subcoxae of segmenta 8—9: *sc* subcoxae, par^1 paramera anteriora, par^2 paramera posteriora, *pe* penis, p^8 styli segmenti 8^1, *pn* styli segmenti 9^1.
Fig. 17.	*Machilis perkinsi,*	caput from above.
Fig. 18.	*Machilis heteropus,*	,, ,,
Fig. 19.	*Lepisma hawaiiensis,*	♀ enlarged.
Fig. 19a.	,,	♀ in natural size.
Fig. 20.	,,	apex of the tibia, tarsus and praetarsus.
Fig. 21.	,,	7—9 abdominal segments from below: p^5 styli of the 8th segment, p^9 styli of the 9th segment, *ov* ovipositores.
Fig. 22.	..	♀ the end of the body from above: t^{10} 10th tergit, *cm* cercus medianus, *cl* cercus lateralis.
Fig. 23.	,,	♀ the end of the body from below: *la* laminae adanales, *ls* lamina superanalis.
Fig. 24.	,,	the male enlarged.
Fig. 25.	,,	♂ the end of the body from above: letters as in Fig. 22.
Fig. 26.	,,	♂ ,, ,, below: ,, ,, 23.
Fig. 27.	..	♂ 9th abdominal segment from below: *pe* penis, *sc* subcoxa, *par* paramera, *p* styli.



DESCRIPTION OF PLATE IX. (VOL. III.)

COLLEMBOLA.

Fig. 1.	*Lepidocyrtus heterophthalmus,*	side view × 30.
Fig. 2.	,, ,,	ocelli of right side × 110.
Fig. 3.	,, ,,	fore-foot × 350.
Fig. 4.	,, ,,	hind-foot × 350.
Fig. 5.	,, ,,	end of dens and mucro × 525.
Fig. 6.	,, ,,	scales × 525.
Fig. 7.	*Entomobrya insularis,*	side view × 30.
Fig. 8.	,, ,,	ocelli of right side × 110.
Fig. 9.	,, ,,	fore-foot × 350.
Fig. 10.	,, ,,	hind-foot × 350.
Fig. 11.	,, ,,	end of dens and mucro × 525.
Fig. 12.	*Entomobrya kalakaua,*	side view × 30.
Fig. 13.	,, ,,	ocelli of right side × 110.
Fig. 14.	,, ,,	fore-foot × 350.
Fig. 15.	,, ,,	hind-foot × 350.
Fig. 16.	,, ,,	end of dens and mucro × 525.
Fig. 17.	*Isotoma perkinsi,*	side view × 45.
Fig. 18.	,, ,,	fore-foot × 525.
Fig. 19.	,, ,,	mucro × 525.
Fig. 20.	*Neanura citronella,*	dorsal view × 28.
Fig. 21.	,, ,,	right feeler × 55.
Fig. 22.	,, ,,	fore-foot × 175.
Fig. 23.	,, ,,	ventral view of hinder segments × 28.
Fig. 24.	,, ,,	surface of skin and clubbed hair × 525.
Fig. 25.	,, ,,	jaws dissected out of head × 110. 25 a. 2nd maxillae (mx^2), tongue (*li*), and maxillulae (*mxl*), ventral view; 25 b. tongue (*li*) and maxillulae (*mxl*), dorsal view; 25 c. 1st maxilla (*ga*, galea; *la*, lacinia; *p*, palp); 25 d. mandible.
Fig. 26.	,, ,,	ocelli and post-antennal organ (*p. a. o.*) of right side × 250.
Fig. 27.	,, ,,	right antenna (terminal segments) from above, showing groove (*gr*) and sense-organs (*a. o.* 3, *a. o.* 4) × 125.

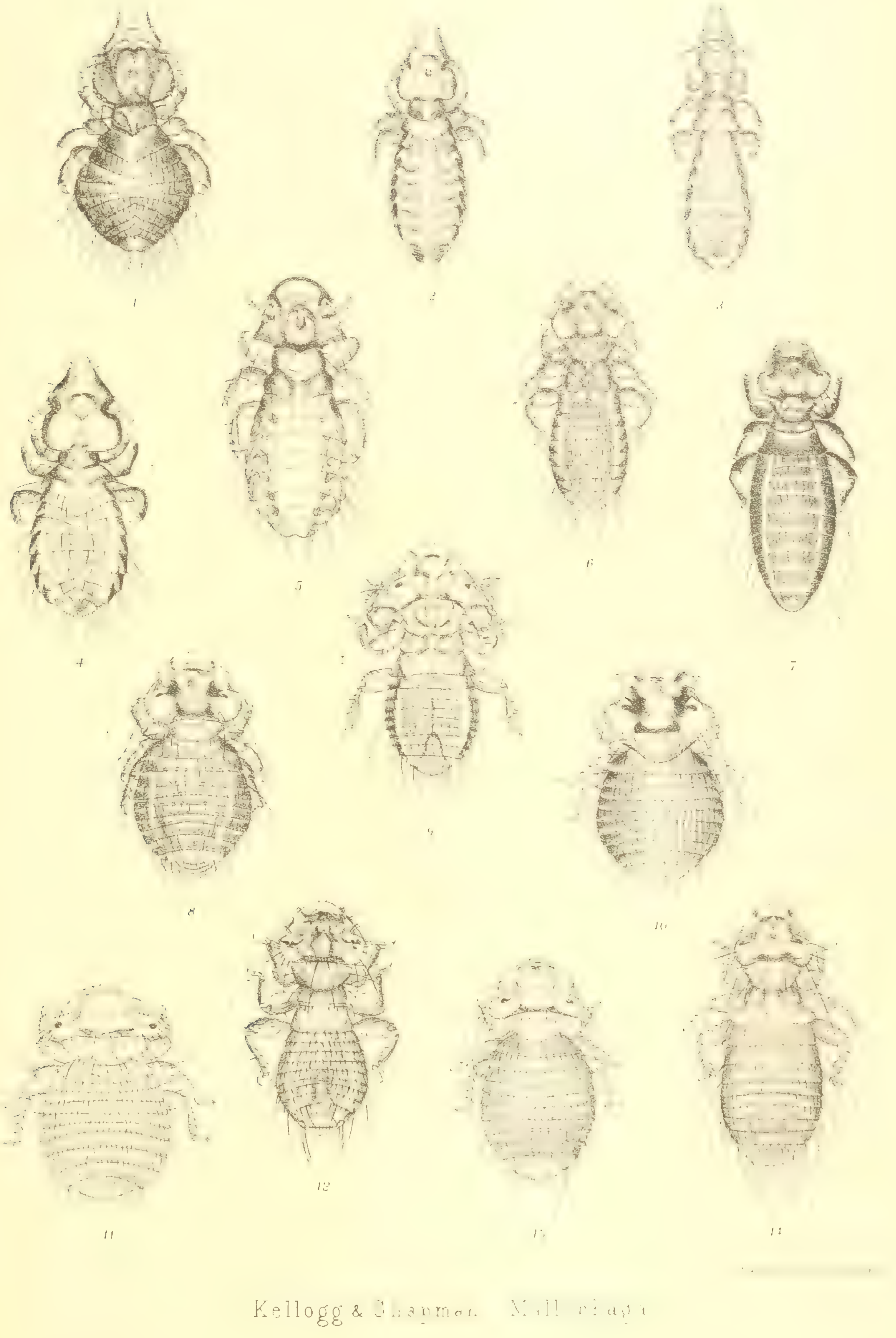


Carpenter. Collembola.

DESCRIPTION OF PLATE X. (VOL. III.)

MALLOPHAGA.

Fig. 1. *Docophorus macgregorii* Kellogg & Chapman, ♀.
Fig. 2. *Nirmus minhaensis* Kellogg & Chapman, ♀.
Fig. 3. „ *stenozonus* Kellogg & Chapman, ♀.
Fig. 4. „ *diaprepes* Kellogg & Chapman, ♂.
Fig. 5. *Goniocotes chinensis* Kellogg & Chapman, ♀.
Fig. 6. *Colpocephalum kilauensis* Kellogg & Chapman, ♀.
Fig. 7. „ *epiphanes* Kellogg & Chapman, ♀.
Fig. 8. „ *brachysomum* Kellogg & Chapman, ♀.
Fig. 9. „ *conspicuum* Kellogg & Chapman, ♂.
Fig. 10. „ *discrepans* Kellogg & Chapman, ♀.
Fig. 11. *Menopon hawaiiensis* Kellogg & Chapman, ♀.
Fig. 12. „ *cyrtostigmum* Kellogg & Chapman, ♂.
Fig. 13. „ *hilensis* Kellogg & Chapman, ♀.
Fig. 14. „ *invadens* Kellogg & Chapman, ♀.

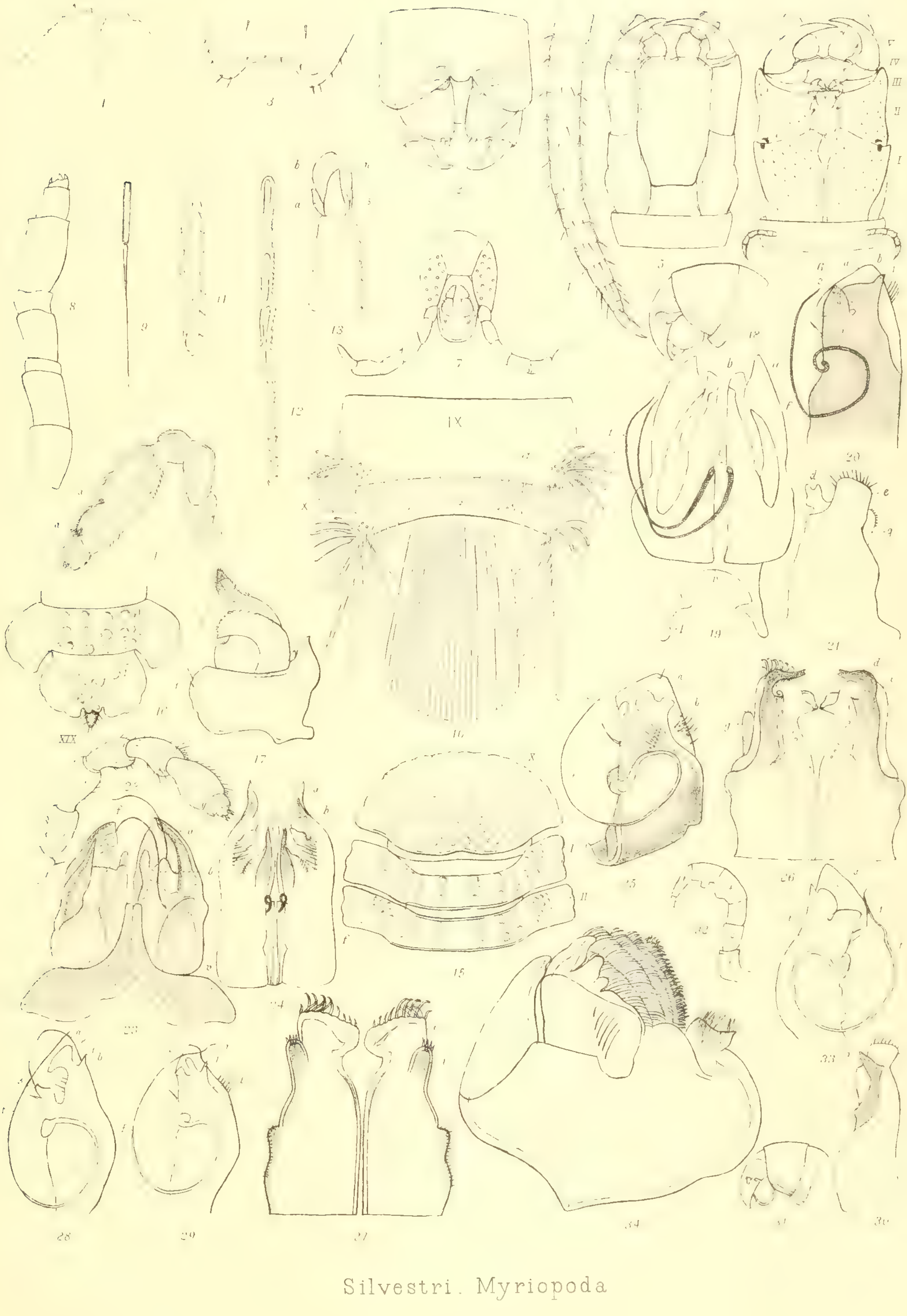


Kellogg & Chapman. Mallophaga.

DESCRIPTION OF PLATE XI. (VOL. III.)

MYRIOPODA.

Fig. 1. *Lamyctes fulvicornis* var. *hawaiiensis*: anterior part of the subcoxae of the maxillary legs.
Fig. 2. ,, ,, ,, genital segment of a female.
Fig. 3. ,, *heterotarsus*: posterior end of the 16th tergit.
Fig. 4. ,, ,, 2nd tarsal segment of the 15th pair of the ambulatory legs.
Fig. 5. *Lamnomyx spissus*: head and I—II segments of the truncus from above.
Fig. 6. ,, ,, ,, ,, ,, from below (I = subcoxae, II—V the other segments of the maxillary legs).
Fig. 7. ,, ,, end of the body from below.
Fig. 8. *Polyxenus hawaiiensis*: antenna.
Fig. 9. ,, ,, a seta of the organ of Tomösvary.
Fig. 10. ,, ,, the end (IX—X segments) of truncus (*a*, posterior range of the dorsal setae; *b*, lateral pencil; *c*, caudal pencil).
Fig. 11. ,, ,, a seta of the dorsum.
Fig. 12. ,, ,, a seta of the caudal pencil (*a*, apical appendix).
Fig. 13. ,, ,, the end of a leg (*u*, unguis; *b*, lamina; *a*, superior process; *s*, seta).
Fig. 14. *Aporodesminus wallacei*: antenna.
Fig. 15. ,, ,, caput cum collo, et trunci segmenta I—II.
Fig. 16. ,, ,, segments XVII—XIX of the truncus.
Fig. 17. ,, ,, copulatory organ of a male.
Fig. 18. *Dimerogonus aveburyi*: head, collum and first segment of the truncus (lateral view).
Fig. 19. ,, ,, anterior copulatory organ from behind.
Fig. 20. ,, ,, internal view of a half of the anterior copulatory organ.
Fig. 21. ,, ,, ,, ,, posterior copulatory organ.
Fig. 22. ,, *sharpi*: antenna.
Fig. 23. ,, ,, anterior copulatory organ from before.
Fig. 24. ,, ,, ,, ,, behind.
Fig. 25. ,, ,, internal view of a half of the anterior copulatory organ.
Fig. 26. ,, ,, posterior copulatory organ from behind.
Fig. 27. ,, ,, ,, ,, before.
Fig. 28. ,, *shipleyi*: internal view of a half of the anterior copulatory organ.
Fig. 29. ,, *carpenteri*: ,, ,, ,, ,,
Fig. 30. ,, ,, half of the posterior copulatory organ from behind.
Fig. 31. ,, *beddardi*: head, collum and first segment of the truncus (lateral view).
Fig. 32. ,, ,, leg of 6th pair of a male.
Fig. 33. ,, ,, internal view of a half of the anterior copulatory organ.
Fig. 34. ,, *pococki*: premandibula.

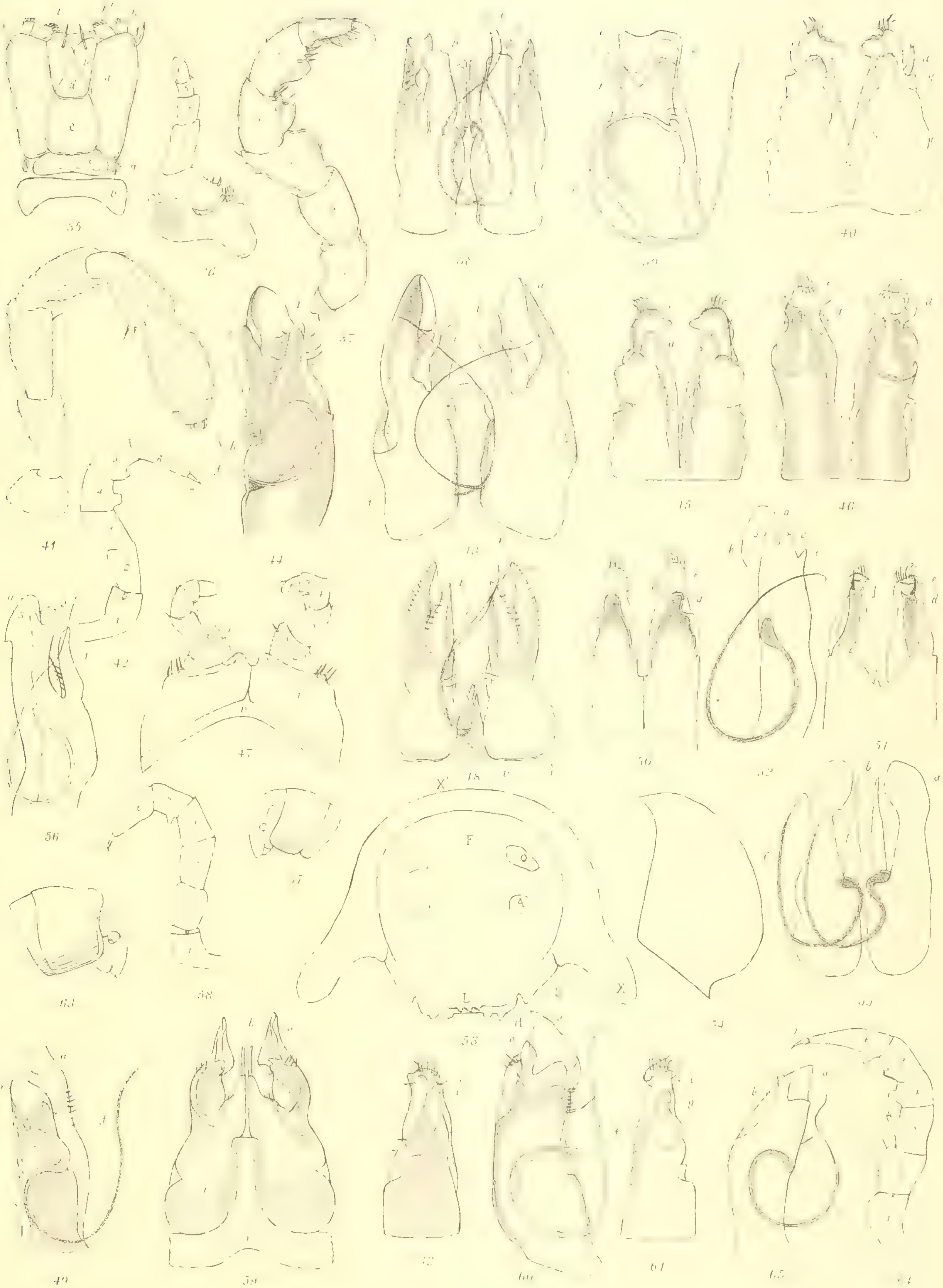


Silvestri. Myriopoda

DESCRIPTION OF PLATE XII. (VOL. III.)

MYRIOPODA.

Fig. 35. [*Dimerogonus pococki*] hypostoma.
Fig. 36. ,, ,, first pair of legs of a male.
Fig. 37. ,, ,, leg of 6th pair of a male.
Fig. 38. ,, ,, anterior copulatory organ from behind.
Fig. 39. ,, ,, half of the anterior copulatory organ (internal view).
Fig. 40. ,, ,, posterior copulatory organ from before.
Fig. 41. *Dimerogonus sedgwicki*: antenna.
Fig. 42. ,, ,, leg of 6th pair of a male.
Fig. 43. ,, ,, anterior copulatory organ from behind.
Fig. 44. ,, ,, half of the anterior copulatory organ (internal view).
Fig. 45. ,, ,, posterior copulatory organ from before.
Fig. 46. ,, ,, ,, ,, behind.
Fig. 47. ,, *sinclairi*: first pair of legs of a male.
Fig. 48. ,, ,, anterior copulatory organ from behind.
Fig. 49. ,, ,, half of the anterior copulatory organ (internal view).
Fig. 50. ,, ,, posterior copulatory organ from before.
Fig. 51. ,, ,, ,, ,, behind.
Fig. 52. ,, *lankesteri*: half of the anterior copulatory organ (internal view).
Fig. 53. ,, *harmeri*: schematic anterior view of the head (F) with the collum (X—X^1).
(*L*, labium; *H*, hypostoma; *S*, stipites mandibulares; *O*, oculi; *A*, antenna.)
Fig. 54. ,, ,, contour of the inferior part of the collum.
Fig. 55. ,, ,, anterior copulatory organ from behind.
Fig. 56. ,, ,, half of the anterior copulatory organ (internal view).
Fig. 57. ,, *perkinsi*: head, collum and first segment of the truncus (lateral view).
Fig. 58. ,, ,, leg of 3rd pair of a male.
Fig. 59. ,, ,, anterior copulatory organ from before.
Fig. 60. ,, ,, half of the anterior copulatory organ (internal view).
Fig. 61. ,, ,, posterior copulatory organ from before.
Fig. 62. ,, ,, ,, ,, behind.
Fig. 63. ,, *koebelei*: head, collum and first segment of truncus (lateral view).
Fig. 64. ,, ,, leg of 4th pair of a male.
Fig. 65. ,, ,, half of the anterior copulatory organ (internal view).

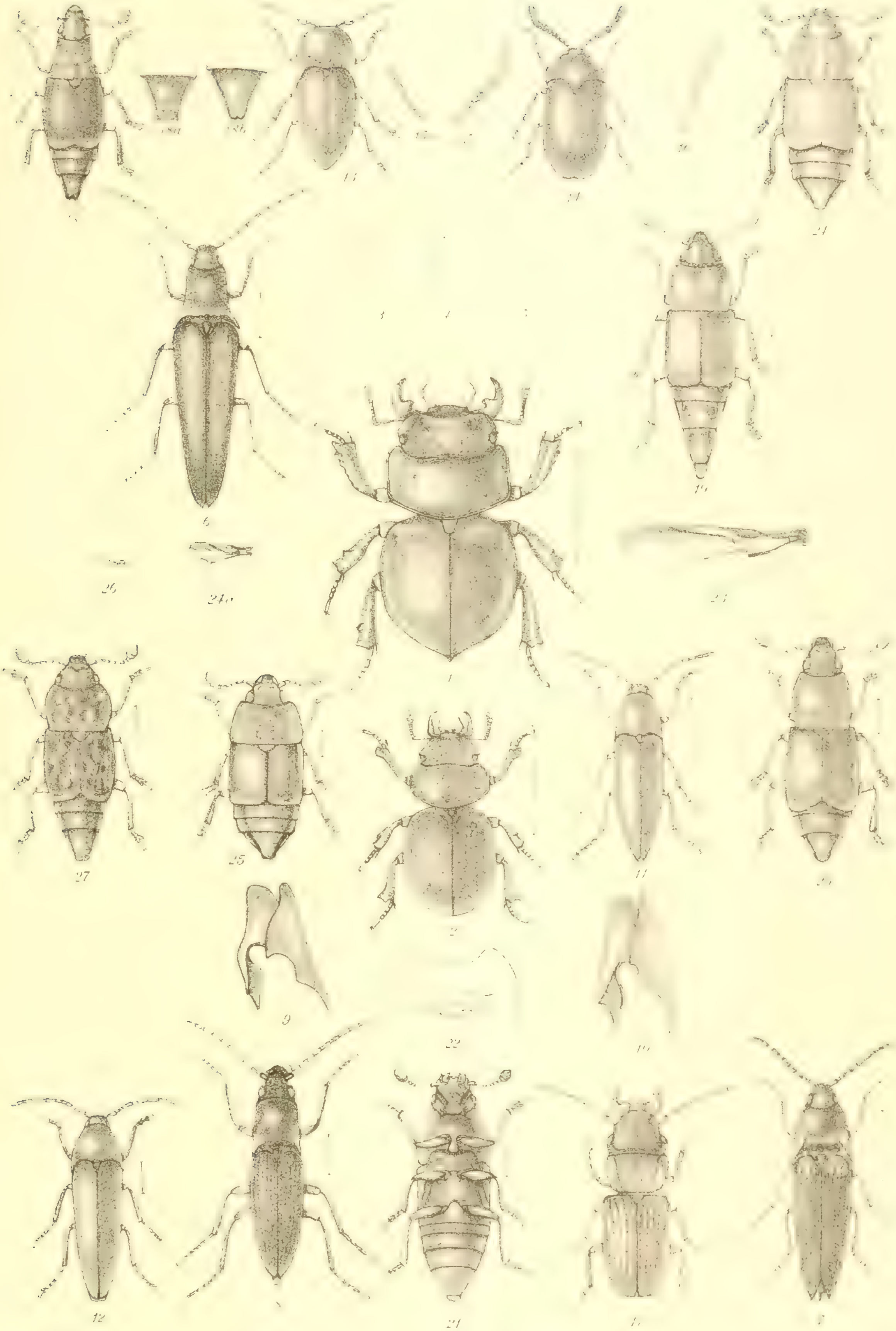


Silvestri. Myriapoda

DESCRIPTION OF PLATE XIII. (VOL. III.)

COLEOPTERA. LUCANIDAE, ETC.

Fig. 1. *Apterocyclus waterhousei.*
Fig. 2. ,, *feminalis.*
Fig. 3. ,, *munroi*, anterior tibia.
Fig. 4. ,, *adpropinquans*, anterior tibia.
Fig. 5. ,, *varians*, anterior tibia.
Fig. 6. *Eopenthes muticus* (see also fig. 9).
Fig. 7. ,, *basalis* ♀ (see also fig. 10).
Fig. 8. *Dacnitus currax.*
Fig. 9. *Eopenthes muticus* ♂, prothorax in profile.
Fig. 10. ,, *basalis* ♀, prothorax in profile.
Fig. 11. *Dromaeolus perkinsi.*
Fig. 12. *Ceratotaxia tristis.*
Fig. 13. *Dromaeolus pumilio.*
Fig. 14. *Labrocerus moerens* ♂.
Fig. 15. ,, ,, ♂, antenna. 15*a* *L. moerens* ♀ antenna.
Fig. 16. *Argocerus similaris* ♂, antenna.
Fig. 17. *Parandrita aenea.*
Fig. 18. *Goniothorax conicicollis* ♀ (see also fig. 18*b*).
Fig. 18*a*. ,, *cuneatus* ♀, pygidium.
Fig. 18*b*. ,, *conicicollis* ♀, pygidium.
Fig. 19. *Gonioryctus suavis* ♂.
Fig. 20. *Eunitidula sublaevis.*
Fig. 21. *Orthostolus robustus* ♂, under-surface.
Fig. 22. ,, *prosternalis* ♀, prosternum.
Fig. 23. ,, *sordidus* ♂, wing $\times \frac{5}{1}$.
Fig. 24. *Cyrtostolus subalatus* ♂. 24*a* wing $\times \frac{5}{1}$.
Fig. 25. *Apetasimus involucer* ♀.
Fig. 26. ,, ,, ♂, wing $\times \frac{5}{1}$.
Fig. 27. *Apetinus macrothorax.*



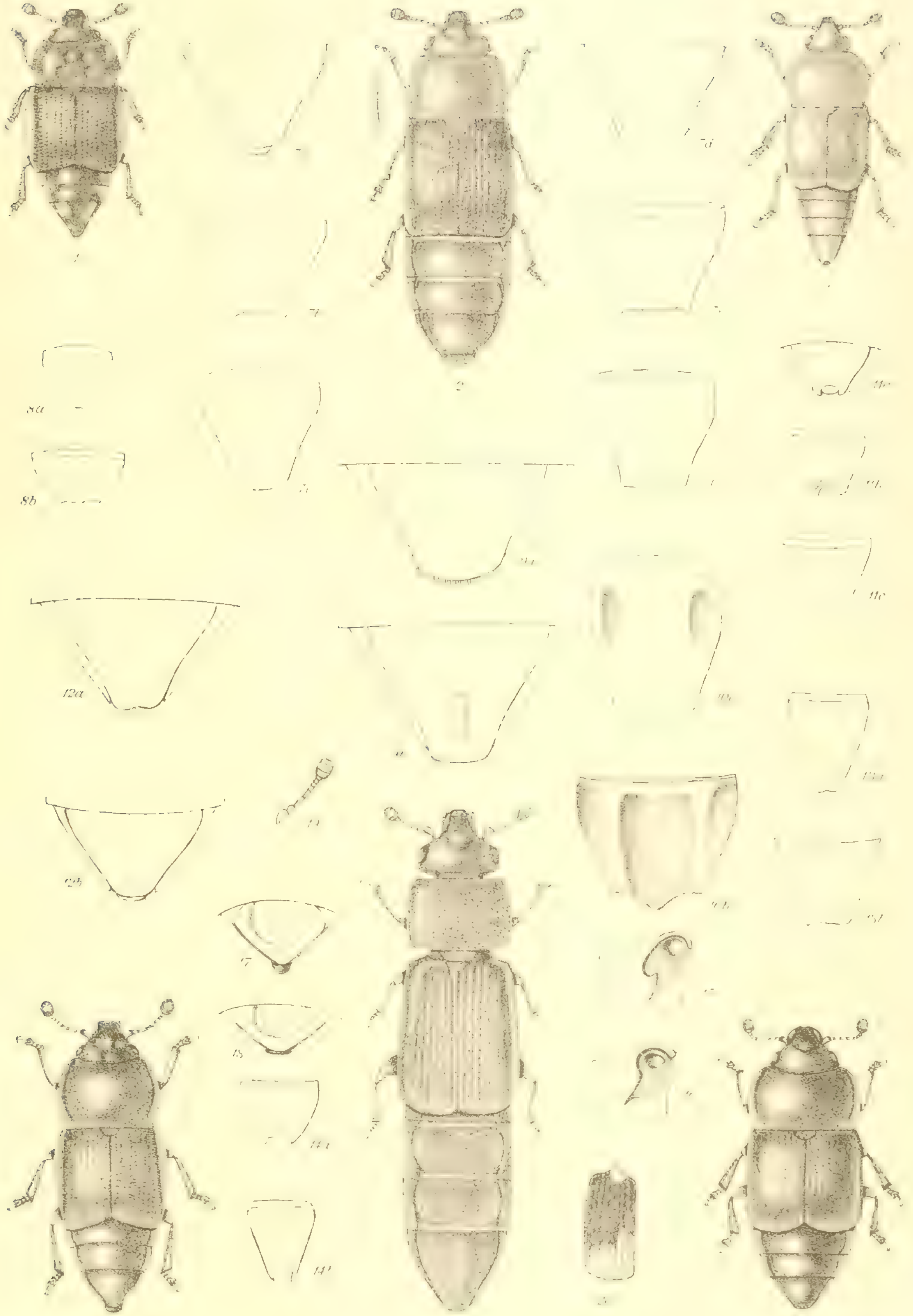
Sharp and [illegible] Coleoptera.

DESCRIPTION OF PLATE XIV. (VOL. III.)

COLEOPTERA. NITIDULIDAE.

Fig. 1. *Eupetinus laevigatus* ♂.
Fig. 2. *Notopeplus reitteri* ♂.
Fig. 3. *Nesopeplus lambianus* ♂.
Fig. 4. *Nesapterus monticola* ♂.
Fig. 5. *Cillaeopeplus infimus* ♀.
Fig. 6. *Nesopetinus metallescens* ♀.
Fig. 7*a*. *Gonioryctus oppositus* ♂, last abdominal segment, dorsal view.
Fig. 7*b*. „ „ „ „ ventral plate.
Fig. 7*c*. „ „ „ „ dorsal plate.
Fig. 7*d*. „ „ ♀, last abdominal segment, dorsal view.
Fig. 7*e*. „ „ „ „ ventral plate.
Fig. 7*f*. „ „ „ „ dorsal plate.
Fig. 8*a*. *Nesopeplus vagepictus* ♂, last dorsal plate.
Fig. 8*b*. „ „ „ „ ventral plate.
Fig. 9*a*. *Gonioryctus kauaiensis* ♂, last abdominal segment, dorsal view.
Fig. 9*b*. „ „ ♀ „ „ „ „ „
Fig. 10*a*. *Goniothorax inaequalis* ♂, last dorsal plate.
Fig. 10*b*. „ „ „ „ ventral plate.
Fig. 11*a*. *Nesopeplus inauratus* ♂, last abdominal segment, dorsal view.
Fig. 11*b*. „ „ „ „ dorsal plate.
Fig. 11*c*. „ „ „ „ ventral plate.
Fig. 12*a*. *Gonioryctus latus* ♀, last abdominal segment, dorsal view.
Fig. 12*b*. „ „ ♂, „ „ „ „ „
Fig. 13*a*. *Nesopetinus tinctus* ♂, last dorsal plate.
Fig. 13*b*. „ „ „ „ ventral plate.
Fig. 14*a*. *Nesopeplus bidens* ♂, last ventral plate.
Fig. 14*b*. „ „ „ „ dorsal plate.
Fig. 15. Prothorax of *Nesopeplus inauratus* ♂, seen inverted, legs removed.
Fig. 16. „ „ *Nesopetinus metallescens* ♂ „ „ „
Fig. 17. Prothorax of *Nesopeplus inauratus* ♂, seen from behind.
Fig. 18. „ „ *Nesopetinus metallescens* ♂ „ „
Fig. 19. *Eupetinus brevicornis* ♂, antenna.
Fig. 20. Elytron of *Eupetinus*, various species, var. *dimidiatus*.

N.B. The outline figures 7 to 14 are all equally magnified on a scale of about $\frac{18}{1}$.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8b
12a
12b
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14b
11c

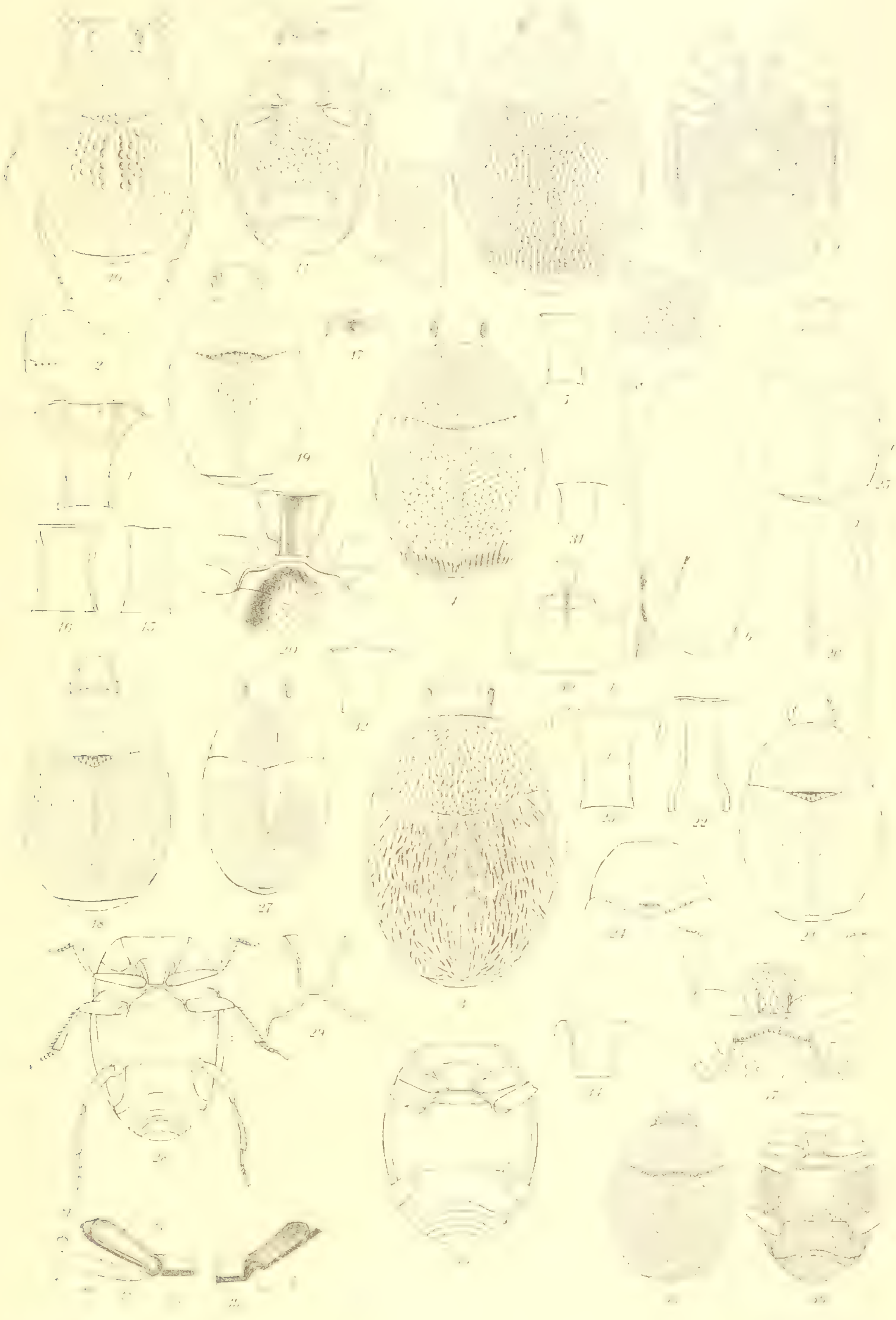
[illegible]

DESCRIPTION OF PLATE XV. (VOL. III.)

COLEOPTERA. HISTERIDAE, ETC.

Fig. 1. *Acritus minor*, keel of prosternum in surface view.
Fig. 2. ,, ,, ,, prosternum in side view.
Fig. 3. ,, *ornatus*.
Fig. 4. ,, *facilis*.
Fig. 5. ,, *kauaiensis*, keel of prosternum.
Fig. 6. ,, ,, wing; *a*, length of elytron to same scale.
Fig. 7. ,, *kukuiae*, base of elytron.
Fig. 8. ,, *punctatus*, dorsal.
Fig. 9. ,, ,, ventral.
Fig. 10. ,, *sculptus*, dorsal.
Fig. 11. ,, ,, ventral.
Fig. 12. ,, ,, keel of prosternum.
Fig. 13. ,, *makaweliae*, keel of prosternum.
Fig. 14. ,, ,, elytron.
Fig. 15. ,, *waianaae*, keel of prosternum.
Fig. 16. ,, *basalis*, keel of prosternum.
Fig. 17. ,, *subbasalis*, pro- and mesosterna.
Fig. 18. ,, *eutretus*.
Fig. 19. ,, *lanaiensis*.
Fig. 20. ,, ,, pro- and mesosterna.
Fig. 21. ,, *angustisternum*.
Fig. 22. ,, ,, keel of prosternum.
Fig. 23. ,, *perkinsi* ,, ,,
Fig. 24. ,, ,, pronotum.
Fig. 25. ,, *subalatus*, with right elytron removed; *a*, wing.
Fig. 26. ,, ,, wing, more enlarged; *a*, length of elytron to same scale.
Fig. 27. ,, *concentricus*.
Fig. 28. ,, *flavitarsis*, ventral.
Fig. 29. ,, ,, pro- and mesosterna.
Fig. 30. ,, *insolitus*, pro-, meso- and metasterna.
Fig. 31. ,, ,, keel of prosternum.
Fig. 32. ,, *parvulus*, keel of prosternum.
Fig. 33. ,, *subrotundus*, ventral.
Fig. 34. ,, ,, keel of prosternum.
Fig. 35. ,, *insularis*, dorsal.
Fig. 36. ,, ,, ventral.
Fig. 37. *Bacanius atomarius*, pro- and mesosterna, &c.
Fig. 38. *Fallia elongata*; one half of the bent-up hind portion of the metasternum, seen from behind, with the coxa in situ: *ep*, epimeron; *es*, episternum; *ms*, metasternum; *fl*, membranous floor of coxal cavity; *c*, coxa; *tr*, trochanter; *f*, femur.
Fig. 39. ,, ,, a similar view to the preceding, but on the other side of the body, and with the leg entirely removed, showing the empty slot for the coxa; *a*, portion of the cavity in which the globose distal end of the coxa lies; *b*, slot for the long portion of the coxa.

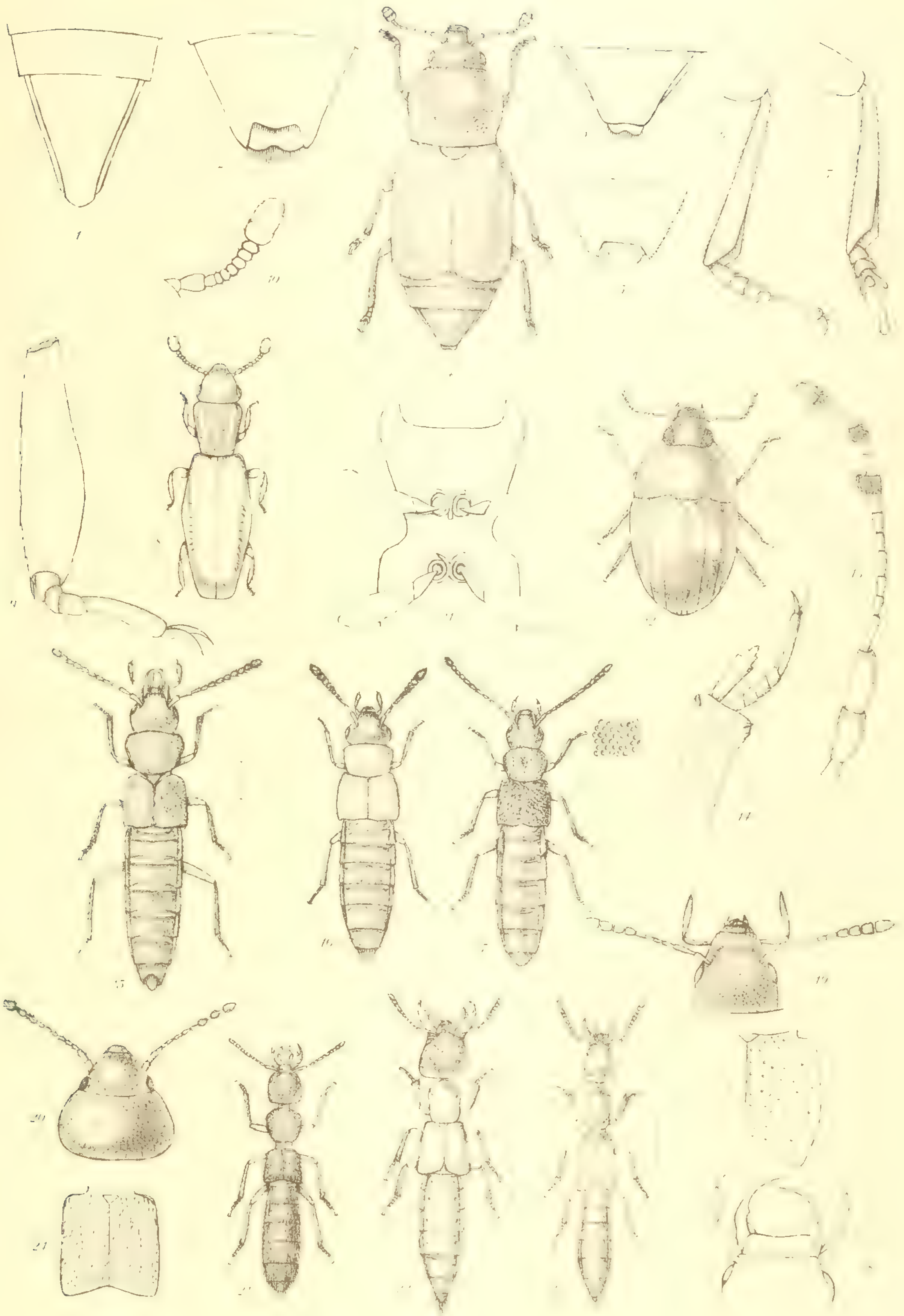
N.B. Figures all made with the help of a drawing apparatus. The differences of curvature of the front margins of prosterna (e.g. figs. 23, 32) are not entirely natural, but are due, in part at any rate, to the difficulty of representing curved surfaces by plane figures.



DESCRIPTION OF PLATE XVI. (VOL. III.)

COLEOPTERA. NITIDULIDAE, STAPHYLINIDAE, ETC.

Fig. 1. *Nesopetinus blackburnianus* ♀, dorsal termination of abdomen.
Fig. 2. ,, ,, ♂, ventral ,, ,, ,,
Fig. 3. ,, *blackburni* ♂, dorsal ,, ,, ,,
Fig. 4. ,, ,, ♂.
Fig. 5. *Nesopeplus serratus* ♂, termination of abdomen ventral (the sidepieces are the lateral portions of the dorsal plate).
Fig. 6. *Nesopetinus concolor* ♂, right hind foot.
Fig. 7. ,, *filipes* ♂ ,, ,, ,,
Fig. 8. *Derolathrus atomarius.*
Fig. 9. ,, ,, middle tibia and tarsus.
Fig. 10. ,, ,, antenna.
Fig. 11. ,, ,, pro- and mesosterna.
Fig. 12. *Propalticus oculatus.*
Fig. 13. ,, ,, antenna.
Fig. 14. ,, ,, anterior foot.
Fig. 15. *Eudiestota grandis.*
Fig. 16. *Diestota testacea.*
Fig. 17. *Diestota sculpturata.*
Fig. 18. *Oligota latifrons*, head.
Fig. 19. ,, *prolixa*, head.
Fig. 20. *Ptiliodes insignis*, head and thorax.
Fig. 21. *Nesomedon brunnescens.*
Fig. 22. *Leurocorynus cephalotes.*
Fig. 23. *Xanthocorynus deceptor.*
Fig. 24. *Nesomedon quadratus*, elytra.
Fig. 25. *Liophaena gracilipes*, elytron.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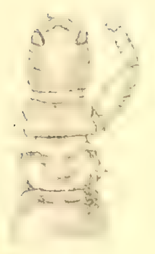
DESCRIPTION OF PLATE XVII. (VOL. III.)

THYSANOPTERA.

Fig. 1. *Dermothrips hawaiiensis*, gen. et sp. nov., forma *aptera*, ♀ × 27; *n.s.* natural size, *a*, ♀ ; *b*, ♂ ; forma *macroptera*, *c*, ♀.
Fig. 2. ,, ,, ♀, right antenna × 90.
Fig. 3. ,, ,, ♂, head, right foreleg, thorax and part of abdomen × 27.
Fig. 4. ,, ,, ♂, end of abdomen × 27.
Fig. 5. ,, ,, ♀, maxillary palpus × 120.
Fig. 6. *Oedemothrips laticeps*, gen. et sp. nov., ♂ × 27; *n.s.* natural size.
Fig. 7. ,, ,, ♂, right antenna × 90.
Fig. 8. ,, ,, ♀, head, prothorax and left foreleg × 27.
Fig. 9. ,, ,, ♀, lateral view of head × 27.
Fig. 10. ,, ,, ♀, left fore-tarsus × 60.
Fig. 11. *Anthothrips usitatus*, sp. nov., ♀, head, prothorax, right antenna and foreleg × 27.
Fig. 12. ,, ,, ♀, end of abdomen × 27.
Fig. 13. ,, ,, ♀, right fore-wing × 27.
Fig. 14. ,, ,, ♀, right antenna (outline) × 120; *s.* = sensoria.
Fig. 15. *Thrips multispinus*, sp. nov., ♀, head, prothorax and right foreleg × 40.
Fig. 16. ,, ,, ♀, end of abdomen × 40.
Fig. 17. ,, ,, ♀, right fore-wing × 40.
Fig. 18. ,, ,, ♀, right antenna × 60.
Fig. 19. ,, ,, ♀, right hind-coxa × 60.
Fig. 20. ,, ,, ♀, left hind-tibia and tarsus × 60.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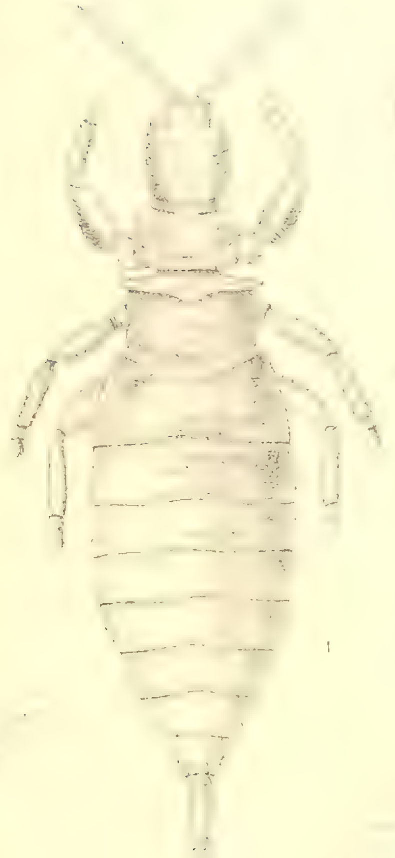
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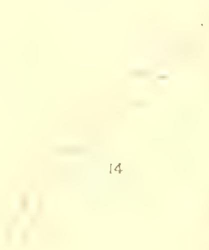
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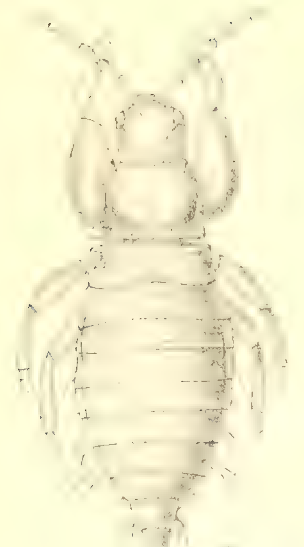

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DESCRIPTION OF PLATE XVIII. (VOL. III.)

THYSANOPTERA.

Fig. 1 *Diceratothrips brevicornis*, sp. nov., ♀, head, prothorax and right foreleg × 27.
Fig. 2. ,, ,, ,, ,, tube × 27; *a* = surface sculpture.
Fig. 3. ,, ,, ,, ,, joints three to eight (outline) of right antenna × 40.
Fig. 4. ,, *bicornis* Bagnall, sp. nov., ♀, tube (for comparison) × 27.
Fig. 5. ,, ,, ,, ,, ,, joints three to eight of right antenna (for comparison) × 40.
Fig. 6. *Trichothrips laticornis*, sp. nov., ♀, head, prothorax and left foreleg × 27.
Fig. 7. ,, ,, ,, ,, end of abdomen × 27.
Fig. 8. ,, ,, ,, ,, part of tube showing *s.*, probable sense areas × 120.
Fig. 9. ,, ,, ,, ,, left antenna (outline) × 90.
Fig. 10. ,, ,, ,, ,, end of mouth-cone showing labial palpi × 120.
Fig. 11. *Dolerothrips barbatus*, gen. et sp. nov., ♂, head, prothorax, right foreleg and part of antenna × 27.
Fig. 12. ,, ,, ,, ,, end of abdomen × 27.
Fig. 13. ,, ,, ,, ,, antennal joints one to four × 60.
Fig. 14. ,, ,, ,, ,, right wing-pad × 40.
Fig. 15. ,, *flavipes*, sp. nov., ♂, head, prothorax, and right antenna and foreleg × 27.
Fig. 16. ,, ,, ,, ,, end of abdomen × 27.
Fig. 17. ,, ,, ,, ,, left wing-pad × 27.
Fig. 18. ,, ,, ,, ♀, prothorax × 27.
Fig. 19 ,, ,, ,, ,, end of abdomen × 27.
Fig. 20. ,, *angusticeps*, sp. nov., ♂, head, prothorax and right foreleg × 27.
Fig. 21. ,, ,, ,, ,, end of abdomen × 27.
Fig. 22. ,, ,, ,, ,, left wing-pad × 27.
Fig. 23. *Trichothrips nigricans*, sp. nov., ♂, tube × 27.

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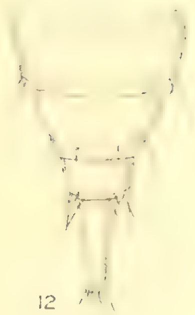
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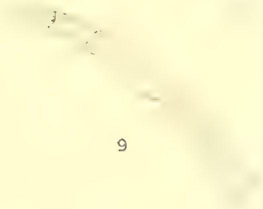
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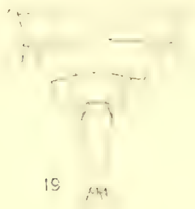
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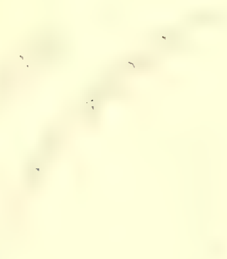
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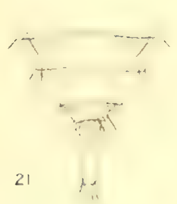
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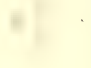
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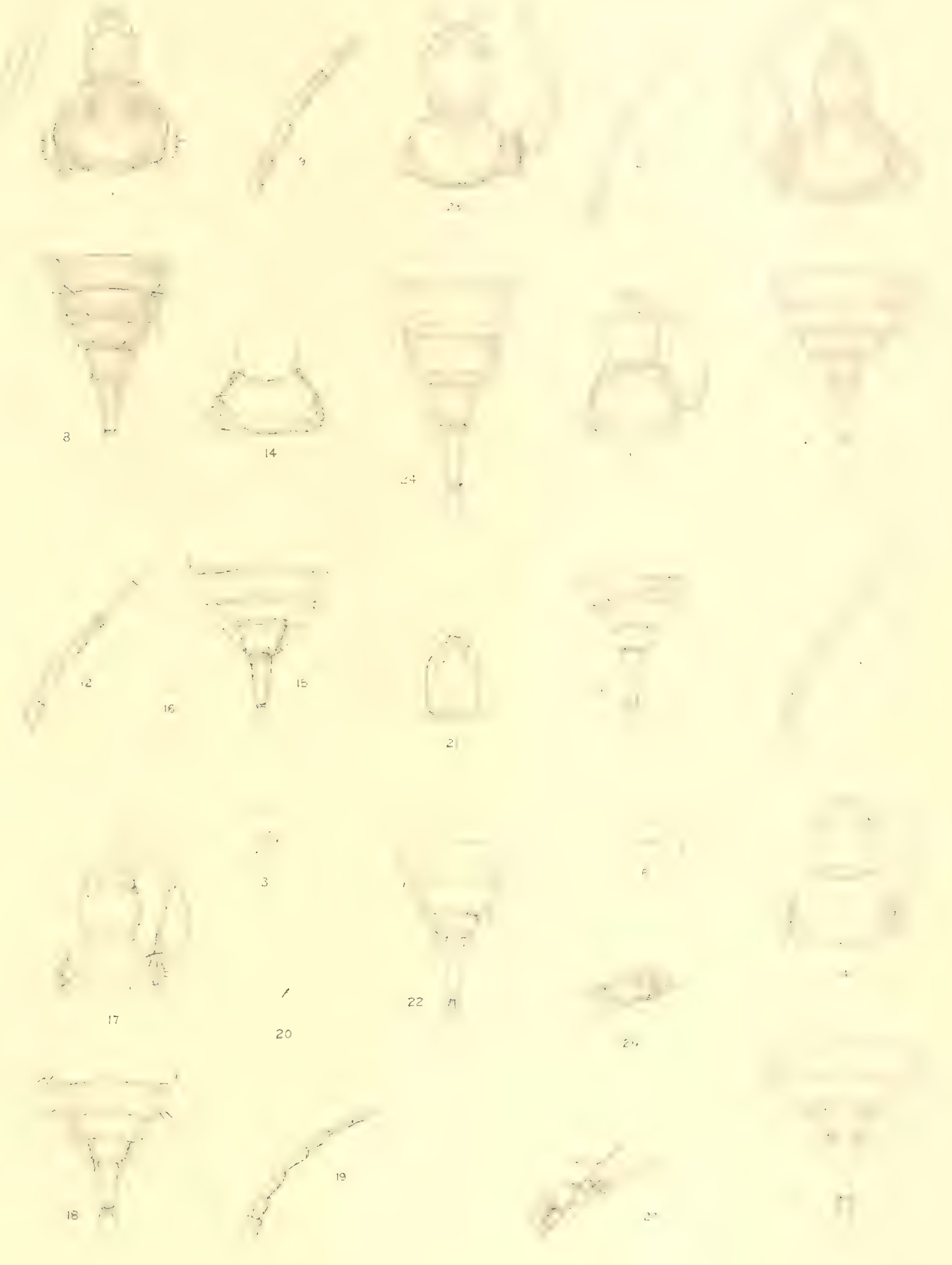
DESCRIPTION OF PLATE XIX. (VOL. III.)

THYSANOPTERA.

Fig. 1. *Dolerothrips ovatus*, sp. nov., ♂, head, prothorax and left foreleg × 27.
Fig. 2. ,, ,, ,, ,, end of abdomen × 27.
Fig. 3. ,, ,, ,, ,, right antenna × 40.
Fig. 4. ,, ,, ,, ♀, head, prothorax and right foreleg × 27.
Fig. 5. ,, ,, ,, ,, end of abdomen × 27.
Fig. 6. ,, ,, ,, ,, right wing retaining spines on seventh abdominal segment in the macropterous form × 27.
Fig. 7. ,, *intermedius*, sp. nov., ♂, head and prothorax × 27.
Fig. 8. ,, ,, ,, ,, end of abdomen × 27.
Fig. 9. ,, ,, ,, ,, right antenna × 40.
Fig. 10. ,, *lanaiensis*, sp. nov., ♂, head, prothorax and right foreleg × 27.
Fig. 11. ,, ,, ,, ,, end of abdomen × 27.
Fig. 12. ,, ,, ,, ,, right antenna × 40.
Fig. 13. ,, ,, ,, ,, left wing-pad × 27.
Fig. 14. ,, ,, ,, ♀, prothorax × 27.
Fig. 15. ,, ,, ,, ,, end of abdomen × 27.
Fig. 16. ,, ,, ,, ,, right wing-pad × 27.
Fig. 17. ,, *perkinsi*, sp. nov., ♀, head, prothorax and right foreleg × 27.
Fig. 18. ,, ,, ,, ,, end of abdomen × 27.
Fig. 19. ,, ,, ,, ,, right antenna × 40.
Fig. 20. ,, ,, ,, ,, left wing-pad × 27.
Fig. 21. ,, *bicolor*, sp. nov., ♀, head × 27.
Fig. 22. ,, ,, ,, ,, end of abdomen × 27.
Fig. 23. ,, *dubius*, sp. nov., ♀, head, prothorax and right foreleg × 27
Fig. 24. ,, ,, ,, ,, end of abdomen × 27.
Fig. 25. ,, ,, ,, ,, right antenna × 40.
Fig. 26. ,, ,, ,, ,, anterior tarsus × 60.
Fig. 27. ,, ,, ,, ,, posterior tarsus × 60



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